P8B-M

Motherboard

E6776

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Contents

Notices vii
Safety information viii
About this guide ix
P8B-M specifications summary xi

Chapter 1: Product introduction

1.1 Welcome! 1-3
1.2 Package contents 1-3
1.3 Serial number label 1-4
1.4 Special features 1-4
1.4.1 Product highlights 1-4
1.4.2 Innovative ASUS features 1-6

Chapter 2: Hardware information

2.1 Before you proceed 2-3
2.2 Motherboard overview 2-5
2.2.1 Placement direction 2-5
2.2.2 Screw holes 2-5
2.2.3 Motherboard layout 2-6
2.2.4 Layout contents 2-7
2.3 Central Processing Unit (CPU) 2-9
2.3.1 Installing the CPU 2-9
2.3.2 Installing the CPU heatsink and fan 2-12
2.3.3 Uninstalling the CPU heatsink and fan 2-13
2.3.4 Installing the CPU heatsink in rack 2-14
2.4 System memory 2-15
2.4.1 Overview 2-15
2.4.2 Memory Configurations 2-15
2.4.3 Installing a DIMM 2-16
2.4.4 Removing a DIMM 2-16
2.5 Expansion slots 2-17
2.5.1 Installing an expansion card 2-17
2.5.2 Configuring an expansion card 2-17
2.5.3 Interrupt assignments 2-18
2.5.4 PCI Express x8 slots (x4 link) 2-18
2.5.5 PCI Express x16 slot (x16 link) 2-18

Contents

2.5.6 PCI slot 2-18
2.5.7 Installing ASMB5 management card 2-19
2.5.8 Connecting the thermal sensor cable 2-20
2.6 Jumpers 2-21
2.7 Connectors 2-27
2.7.1 Rear panel connectors 2-27
2.7.2 Internal connectors 2-28

Chapter 3: Powering up

3.1 Starting up for the first time 3-3
3.2 Powering off the computer 3-4
3.2.1 Using the OS shut down function 3-4
3.2.2 Using the dual function power switch 3-4

Chapter 4: BIOS setup

4.1 Managing and updating your BIOS 4-3
4.1.1 ASUS CrashFree BIOS 3 utility 4-3
4.1.2 ASUS EZ Flash Utility 4-4
4.1.3 BUPDATER utility 4-5
4.2 BIOS setup program 4-7
4.2.1 BIOS menu screen 4-8
4.2.2 Menu bar 4-8
4.2.3 Menu items 4-9
4.2.4 Submenu items 4-9
4.2.5 Navigation keys 4-9
4.2.6 General help 4-9
4.2.7 Configuration fields 4-9
4.2.8 Pop-up window 4-9
4.2.9 Scroll bar 4-9
4.3 Main menu 4-10
4.3.1 System Date 4-10
4.3.2 System Time 4-10
4.3.3 Security 4-10
4.4 Event Logs menu 4-12
4.5 Advanced menu 4-14
4.5.1 ACPI Settings 4-14

Contents

4.5.2 Trusted Computing 4-15
4.5.3 WHEA Configuration 4-15
4.5.4 CPU Configuration 4-16
4.5.5 North Bridge 4-18
4.5.6 South Bridge 4-18
4.5.7 SATA Configuration 4-19
4.5.8 Intel TXT(LT) Configuration 4-20
4.5.9 USB Configuration 4-20
4.5.10 Onboard Devices Configuration 4-21
4.5.11 APM 4-22
4.5.12 Serial Port Console Redirection 4-23

4.6 Monitor menu 4-25
4.7 Boot menu 4-26
4.8 Tool menu 4-28
4.9 Exit menu 4-28

Chapter 5: RAID configuration

5.1 Setting up RAID 5-3
5.1.1 RAID definitions 5-3
5.1.2 Installing hard disk drives 5-4
5.1.3 Setting the RAID item in BIOS 5-4
5.1.4 RAID configuration utilities 5-4

5.2 LSI Software RAID Configuration Utility 5-5
5.2.1 Creating a RAID set 5-6
5.2.2 Adding or viewing a RAID configuration 5-12
5.2.3 Initializing the virtual drives 5-13
5.2.4 Rebuilding failed drives 5-17
5.2.5 Checking the drives for data consistency 5-19
5.2.6 Deleting a RAID configuration 5-22
5.2.7 Selecting the boot drive from a RAID set 5-23
5.2.8 Enabling WriteCache 5-24

5.3 Intel® Rapid Storage Technology Option ROM Utility 5-25
5.3.1 Creating a RAID set 5-26
5.3.2 Creating a Recovery set 5-27
5.3.3 Deleting a RAID set 5-29

Contents

5.3.4 Resetting disks to Non-RAID 5-30
5.3.5 Recovery Volume Options 5-31
5.3.6 Exiting the Intel® Rapid Storage Technology utility..... 5-32
5.3.7 Rebuilding the RAID 5-32
5.3.8 Setting the Boot array in the BIOS Setup Utility..... 5-34

Chapter 6: Driver installation

6.1 RAID driver installation 6-3
6.1.1 Creating a RAID driver disk 6-3
6.1.2 Installing the RAID controller driver 6-6
6.2 Intel® chipset device software installation..... 6-15
6.3 LAN driver installation..... 6-17
6.4 VGA driver installation..... 6-20
6.5 Management applications and utilities installation 6-23
6.5.1 Running the support DVD 6-23
6.5.2 Drivers menu..... 6-23
6.5.3 Utilities menu 6-24
6.5.4 Make disk menu..... 6-24
6.5.5 Contact information..... 6-24

Appendix: Reference information

A.1 P8B-M block diagram.....A-3

Notices

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This class B digital apparatus complies with Canadian ICES-003.

REACH

Complying with the REACH (Registration, Evaluation, Authorization, and Restriction of Chemicals) regulatory framework, we publish the chemical substances in our products at ASUS REACH website at http://csr.asus.com/english/REACH.htm.

Safety information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

DO NOT throw the motherboard in municipal waste. This product has been designed to enable proper reuse of parts and recycling. This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

DO NOT throw the mercury-containing button cell battery in municipal waste. This symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste.

About this guide

This user guide contains the information you need when installing and configuring the motherboard.

How this guide is organized

This user guide contains the following parts:

- **Chapter 1: Product introduction**

  This chapter describes the features of the motherboard and the new technologies it supports.

- **Chapter 2: Hardware information**

  This chapter lists the hardware setup procedures that you have to perform when installing system components. It includes description of the switches, jumpers, and connectors on the motherboard.

- **Chapter 3: Powering up**

  This chapter describes the power up sequence and ways of shutting down the system.

- **Chapter 4: BIOS setup**

  This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

- **Chapter 5: RAID configuration**

  This chapter provides instructions for setting up, creating, and configuring RAID sets using the available utilities.

- **Chapter 6: Driver installation**

  This chapter provides instructions for installing the necessary drivers for different system components.

- **Appendix: Reference information**

  This appendix includes additional information that you may refer to when configuring the motherboard.

Where to find more information

Refer to the following sources for additional information and for product and software updates.

1. **ASUS websites**

   The ASUS website provides updated information on ASUS hardware and software products. Refer to the ASUS contact information.

2. **Optional documentation**

   Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

Conventions used in this guide

To make sure that you perform certain tasks properly, take note of the following symbols used throughout this manual.

DANGER/WARNING: Information to prevent injury to yourself when trying to complete a task.

CAUTION: Information to prevent damage to the components when trying to complete a task.

IMPORTANT: Instructions that you MUST follow to complete a task.

NOTE: Tips and additional information to help you complete a task.

Typography

Bold text	Indicates a menu or an item to select.
Italics	Used to emphasize a word or a phrase.
<Key>	Keys enclosed in the less-than and greater-than sign means that you must press the enclosed key. Example: <Enter> means that you must press the Enter or Return key.
<Key1+Key2+Key3>	If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: <Ctrl+Alt+Del>
`Command`	Means that you must type the command exactly as shown, then supply the required item or value enclosed in brackets. Example: At the DOS prompt, type the command line: **`format A:/S`**

P8B-M specifications summary

Processor Support / System Bus		1 x Socket LGA1155
		Intel® Xeon® E3-1200 Processor Family Intel® Core™ i3-2100 Processor Family Intel® Core™ G8X0 Processor Family Intel® Core™ G6X0 Processor Family
Core Logic		Intel® C204 Chipset
Form Factor		Micro ATX, 9.6" x 9.6"
ASUS Features	**Fan Speed Control**	V
	Rack Ready (Rack and Pedestal dual use)	V
	ASWM Enterprise	V
Memory	**Total Slots**	4 (2 Channels)
	Capacity	Maximum up to 32GB
	Memory Type	DDR3 1066/1333 ECC UDIMM
Expansion Slots (follow SSI Location #)	**Total PCI/PCI-X/ PCI-E Slots**	4
	Slot Location 1	1 x PCI 32bit/33 MHz
	Slot Location 2	1 x PCI-E x8 (Gen2 x4 link)
	Slot Location 3	1 x PCI-E x16 (Gen 2 x16 link)
	Slot Location 4	1 x PCI-E x8 (Gen2 x4 link)
Storage	**SATA Controller**	**Intel® C204:** - 2 x SATA 6Gb/s ports - 4 x SATA 3Gb/s ports - Intel® Rapid Storage Technology (RST) supports software RAID 0, 1, 10 & 5 (Windows) **LSI MegaRAID driver:** - Supports software RAID 0, 1 & 10 (Windows & Linux)
Networking	**LAN**	2 x Intel 82574L 1 x Management LAN
Graphic	**VGA**	Aspeed AST2050 + 16MB VRAM
Onboard I/O Connectors	**TPM Header**	1
	PSU Connector	24-pin ATX power connector + 8-pin ATX 12V power connector
	USB Connectors	1 x USB connector (Type A USB socket) 2 x USB pin header (up to 4 devices)
	Fan Header	5 x 4pin
	SMBus	1
	Chassis Intruder	1
	Serial Port Header	1

(continued on the next page)

P8B-M specifications summary

Rear I/O Connectors	External Serial Port	1
	External USB Port	2
	VGA Port	1
	RJ-45	2 + 1 Management Port
	PS/2 KB/Mouse	1
Management Solution	Software	ASWM Enterprise
	Out of Band Remote Management	Optional ASMB5-iKVM for KVM-over-Internet
Monitoring	CPU Temperature	V
	FAN RPM	V
Environment		Operation temperature: 10°C – 35°C Non operation temperature: -40°C – 70°C Non operation humidity: 20% – 90% (Non condensing)

***Specifications are subject to change without notice.**

This chapter describes the motherboard features and the new technologies it supports.

1 Product introduction

Chapter summary

1

1.1 Welcome! 1-3
1.2 Package contents 1-3
1.3 Serial number label 1-4
1.4 Special features 1-4

1.1 Welcome!

Thank you for buying an ASUS® P8B-M motherboard!

The motherboard delivers a host of new features and latest technologies, making it another standout in the long line of ASUS quality motherboards!

Before you start installing the motherboard, and hardware devices on it, check the items in your package with the list below.

1.2 Package contents

Check your motherboard package for the following items.

		Standard Gift Box Pack	Standard Bulk Pack
Cables	SATA 6G cable	2	—
	SATA 3G cable	4	—
	COM port cable	1	—
Accessories	IO shield	1	1
	Plate for LGA1155	1	1
Application CD	Support CD	1	1
Documentation	User Guide	1	1
Packing Qty.		3pcs per carton	10pcs per carton

If any of the above items is damaged or missing, contact your retailer.

Optional items	Description
ASMB5-iKVM	Remote Management solution provides KVM over IP solution.

1.3 Serial number label

Before requesting support from the ASUS Technical Support team, you must take note of the motherboard's serial number containing 12 characters **xxS2xxxxxxxx** shown as the figure below. With the correct serial number of the product, ASUS Technical Support team members can then offer a quicker and satisfying solution to your problems.

1.4 Special features

1.4.1 Product highlights

Latest processor technology

This motherboard supports the latest Intel® Xeon® E3-1200/Core™ i3-2100 processors in LGA1155 package, which has memory and PCI Express controller integrated to support 2-channel (4 DIMMs) DDR3 memory and 20 PCI Express 2.0 lanes, providing great graphics performance. Intel® Xeon® E3-1200/Core™ i3-2100 processor is one of the most powerful and energy efficient CPU in the world.

Intel® Dynamic Turbo Boost Technology

Intel® Dynamic Turbo Boost Technology opportunistically and automatically allows the processor to run faster than the marked frequency if the processor is operating below power, temperature and current limits. This technology increases performance of both multi-threaded and single-threaded workloads.

Intel Hyper Threading

The thread-level parallelism on each processor makes more efficient use of the processor resources, higher processing throughout and improved performance on today's multi-threaded software.

Intel® EM64T

The motherboard supports Intel® processors with the Intel® EM64T (Extended Memory 64 Technology). The Intel® EM64T feature allows your computer to run on 64-bit operating systems and access larger amounts of system memory for faster and more efficient computing.

DDR3 memory support

The P8B-M supports UDIMM, ECC DDR3 memory that features data transfer rates of 1333/1066 MHZ to meet the higher bandwidth requirements of server and workstation applications. The 2-channel DDR3 architecture boosts system performance, eliminating bottlenecks with peak bandwidth of up to 21GB/s. Furthermore, the supply voltage for the memory is reduced from 1.8 V for DDR2 to just 1.5V for DDR3. This voltage reduction limits the power consumption and heat generation of DDR3 which makes it an ideal memory solution.

PCIe 2.0

This motherboard supports the latest PCIe 2.0 device for twice the current speed and bandwidth. This enhances system performance while still providing backward compatibility to PCIe 1.0 devices.

Intel® 82574L LAN Solution

The motherboard comes with dual Gigabit LAN controllers and ports which provide a total solution for your networking needs. The onboard Intel® 82574L Gigabit LAN controllers use the PCI Express interface and could achieve network throughput close to Gigabit bandwidth.

Enhanced Intel SpeedStep Technology (EIST)

The Enhanced Intel SpeedStep Technology (EIST) intelligently manages the CPU resources by automatically adjusting the CPU voltage and core frequency depending on the CPU loading and system speed or power requirement.

Serial ATA II technology

The motherboard supports the Serial ATA II 3 Gb/s technology through the Serial ATA interface and Intel® C204 chipset. The Serial ATA II specification provides twice the bandwidth of the current Serial ATA products with a host of new features, including Native Command Queuing (NCQ), Power Management (PM) Implementation Algorithm, and Hot Swap. Serial ATA allows thinner, more flexible cables with lower pin count and reduced voltage requirements.

Serial ATA III technology

The motherboard supports the Serial ATA III technology through the Serial ATA interface and Intel® C204 chipset, delivering up to 6Gb/s data transfer rates. Additionally, get enhanced scalability, faster data retrieval, double the bandwidth of current bus systems.

USB 2.0 technology

The motherboard implements the Universal Serial Bus (USB) 2.0 specification, dramatically increasing the connection speed from the 12 Mbps bandwidth on USB 1.1 to a fast 480 Mbps on USB 2.0. USB 2.0 is backward compatible with USB 1.1.

Temperature, fan, and voltage monitoring

The CPU temperature is monitored to prevent overheating and damage. The system fan rotations per minute (RPM) is monitored for timely failure detection. The chip monitors the voltage levels to ensure stable supply of current for critical components.

1.4.2 Innovative ASUS features

ASUS Fan Speed technology

The ASUS Fan Speed technology smartly adjusts the fan speeds according to the system loading to ensure quiet, cool, and efficient operation.

This chapter lists the hardware setup procedures that you have to perform when installing system components. It includes description of the jumpers and connectors on the motherboard.

2 Hardware information

Chapter summary

2

2.1 Before you proceed 2-3
2.2 Motherboard overview 2-5
2.3 Central Processing Unit (CPU) 2-9
2.4 System memory 2-15
2.5 Expansion slots 2-17
2.6 Jumpers 2-21
2.7 Connectors 2-27

2.1 Before you proceed

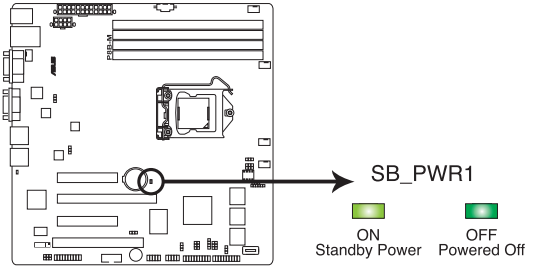
Take note of the following precautions before you install motherboard components or change any motherboard settings.

- Unplug the power cord from the wall socket before touching any component.
- Use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity.
- Hold components by the edges to avoid touching the ICs on them.
- Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.
- Before you install or remove any component, ensure that the power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

Onboard LEDs

1. Standby Power LED (SB_PWR1)

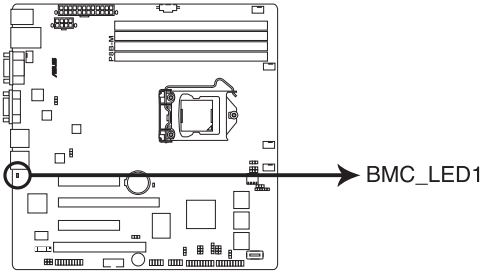
The motherboard comes with a standby power LED. The green LED lights up to indicate that the system is ON, in sleep mode, or in soft-off mode. This is a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component. The illustration below shows the location of the onboard LED.



P8B-M Standby power LED

2. BMC LED (BMC_LED1)

The green heartbeat LED blinks per second to indicate that the ASMB5 is working normally.



P8B-M BMC LED

The heartbeat LED functions only when you install the ASUS ASMB5.

2.2 Motherboard overview

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

To optimize the motherboard features, we highly recommend that you install it in an ATX 1.1 compliant chassis.

Ensure to unplug the chassis power cord before installing or removing the motherboard. Failure to do so can cause you physical injury and damage motherboard components!

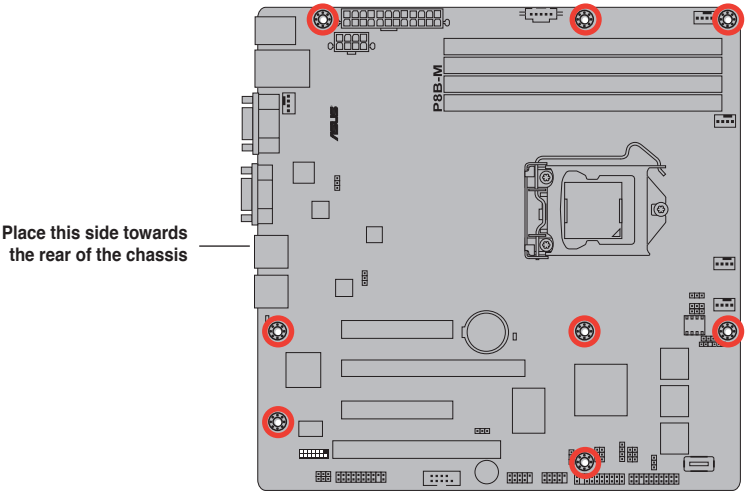
2.2.1 Placement direction

When installing the motherboard, ensure that you place it into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis as indicated in the image below.

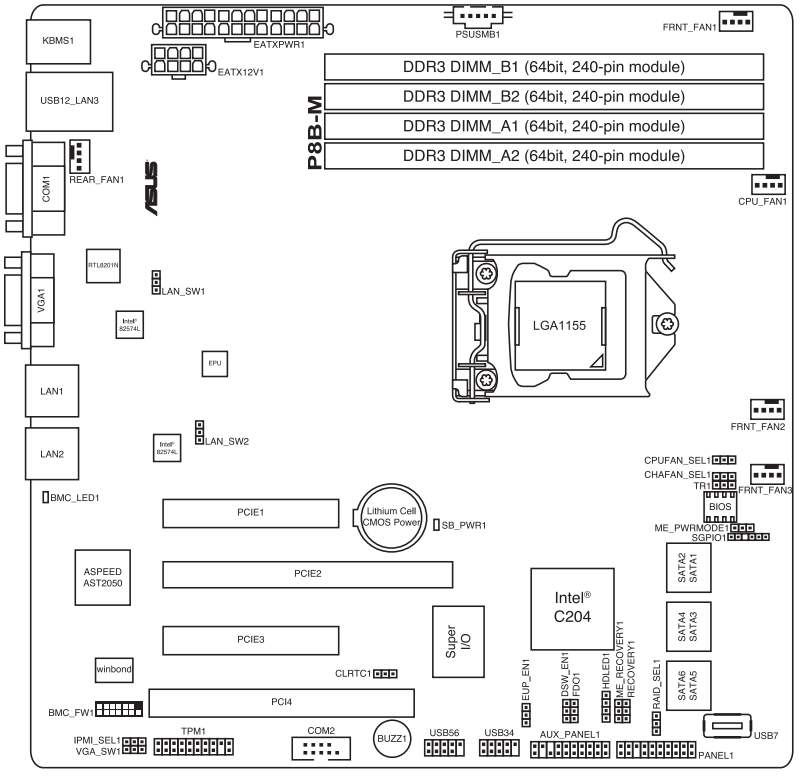
2.2.2 Screw holes

Place eight (8) screws into the holes indicated by circles to secure the motherboard to the chassis.

DO NOT overtighten the screws! Doing so can damage the motherboard.



2.2.3 Motherboard layout



2.2.4 Layout contents

Slots/Soocket		Page
1.	CPU sockets	2-9
2.	DDR3 sockets	2-15
3.	PCI Express x8 / PCI Express x16 / PCI slots	2-18

Jumpers		Page
1.	Clear RTC RAM (CLRTC1)	2-21
2.	VGA controller setting (3-pin VGA_SW1)	2-22
3.	CPU Fan and Chassis Fan control setting (3-pin CPUFAN_SEL1, CHAFAN_SEL1)	2-22
4.	LAN controller setting (3-pin LAN_SW1, LAN_SW2)	2-23
5.	RAID configuration utility selection (3-pin RAID_SEL1)	2-23
6.	Force BIOS recovery setting (3-pin RECOVERY1)	2-24
7.	Chassis intrusion connector (2-pin CHASSIS)	2-25
8.	ME firmware force recovery setting (3-pin ME_RECOVERY1)	2-26

Rear panel connectors		Page
1.	PS/2 mouse port (green)	2-27
2.	RJ-45 port for iKVM	2-27
3.	PS/2 keyboard port (purple)	2-27
4.	USB 2.0 ports 1 and 2	2-27
5.	Serial (COM1) port	2-27
6.	Video Graphics Adapter port	2-27
7.	LAN 1 (RJ-45) port	2-27
8.	LAN 2 (RJ-45) port	2-27

Internal connectors		Page
1.	Serial ATA connectors (SATA 6Gb/s: 7-pin SATA1, SATA2 [Blue]) (SATA 3Gb/s: 7-pin SATA3, SATA4, SATA5, SATA6 [Black])	2-28
2.	Hard disk activity LED connector (4-pin HDLED1)	2-29
3.	USB connector (10-1 pin USB34, USB56; A-Type USB7)	2-29
4.	CPU, front and rear fan connectors (4-pin CPU_FAN1, FRNT_FAN1, FRNT_FAN2, FRNT_FAN3, REAR_FAN1)	2-30
5.	Serial General Purpose Input/Output connector (6-1 pin SGPIO1)	2-31
6.	Thermal sensor cable connectors (3-pin TR1)	2-31
7.	Serial port connectors (10-1 pin COM1/COM2)	2-32
8.	BMC header (BMC_FW1)	2-32
9.	Power Supply SMBus connector (5-pin PSUSMB1)	2-33
10.	TPM connector (20-1-pin TPM)	2-33
11.	ATX power connectors (24-pin ATXPWR1, 8-pin ATX12V1)	2-34
12.	System panel connector (20-1 pin PANEL1)	2-35
13.	Auxiliary panel connector (20-2 pin AUX_PANEL1)	2-36

2.3 Central Processing Unit (CPU)

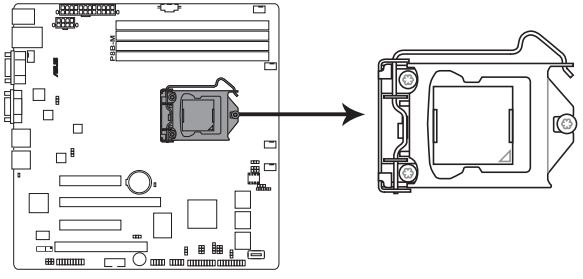
The motherboard comes with a surface mount LGA1155 socket designed for the Intel® Xeon E3-1200/Core™ i3-2100 processor.

- Upon purchase of the motherboard, ensure that the PnP cap is on the socket and the socket contacts are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket contacts/motherboard components. ASUS will shoulder the cost of repair only if the damage is shipment/transit-related.
- Keep the cap after installing the motherboard. ASUS will process Return Merchandise Authorization (RMA) requests only if the motherboard comes with the cap on the LGA1155 socket.
- The product warranty does not cover damage to the socket contacts resulting from incorrect CPU installation/removal, or misplacement/loss/ incorrect removal of the PnP cap.

2.3.1 Installing the CPU

To install a CPU:

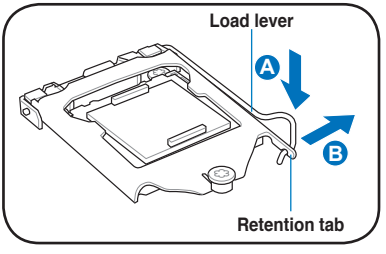
1. Locate the CPU socket on the motherboard.



P8B-M CPU LGA1155

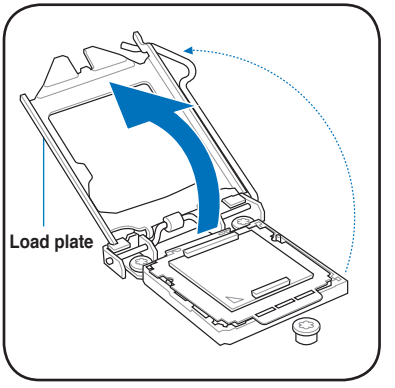
Before installing the CPU, ensure that the socket box is facing toward you and the load lever is on your left.

2. Press the load lever with your thumb (A), and then move it to the right (B) until it is released from the retention tab.

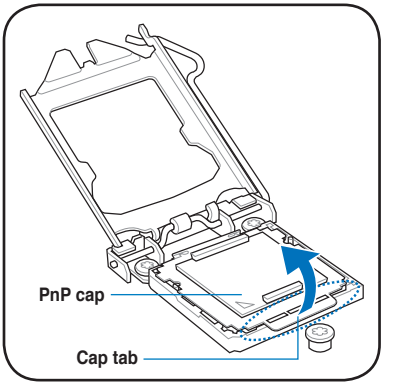


To prevent damage to the socket pins, do not remove the PnP cap unless you are installing a CPU.

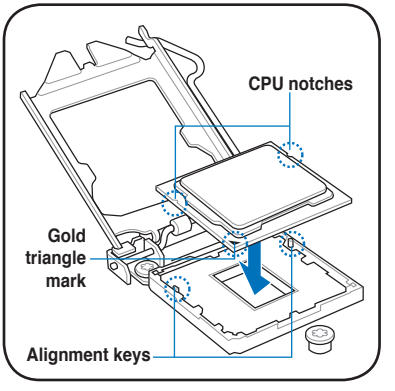
3. Lift the load lever in the direction of the arrow until the load plate is completely lifted.



4. Remove the PnP cap from the CPU socket by lifting the tab only.

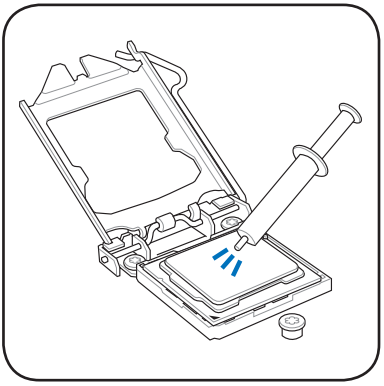


5. Position the CPU over the socket, ensuring that the gold triangle is on the bottom-left corner of the socket, and then fit the socket alignment keys into the CPU notches.



The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!

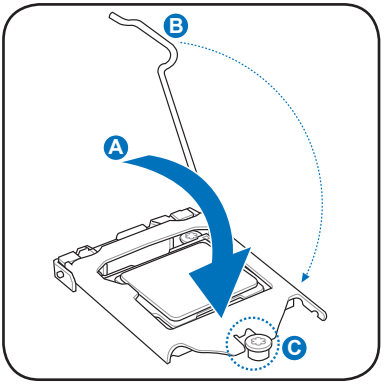
6. Apply some Thermal Interface Material to the exposed area of the CPU that the heatsink will be in contact with, ensuring that it is spread in an even thin layer.



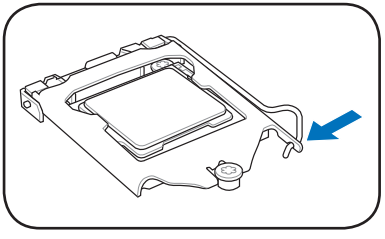
Some heatsinks come with pre-applied thermal paste. If so, skip this step.

The Thermal Interface Material is toxic and inedible. DO NOT eat it. If it gets into your eyes or touches your skin, wash it off immediately, and seek professional medical help.

7. Close the load plate (A), and then push down the load lever (B), ensuring that the front edge of the load plate slides under the retention knob (C).



8. Insert the load lever under the retention tab.



2.3.2 Installing the CPU heatsink and fan

The Intel® LGA1155 processor requires a specially designed heatsink and fan assembly to ensure optimum thermal condition and performance.

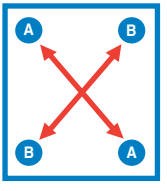
- When you buy a boxed Intel® processor, the package includes the CPU fan and heatsink assembly. If you buy a CPU separately, ensure that you use only Intel®-certified multi-directional heatsink and fan.
- Your Intel® LGA1155 heatsink and fan assembly comes in a push-pin design and requires no tool to install.
- Use an LGA1155-compatible CPU heatsink and fan assembly only. The LGA1155 socket is incompatible with the LGA775 and LGA1366 sockets in size and dimension.

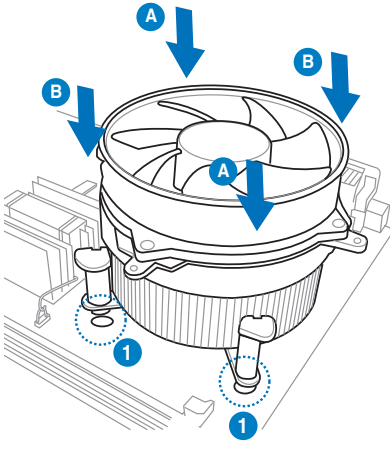
If you purchased a separate CPU heatsink and fan assembly, ensure that the Thermal Interface Material is properly applied to the CPU heatsink or CPU before you install the heatsink and fan assembly.

Ensure that you have installed the motherboard to the chassis before you install the CPU fan and heatsink assembly.

To install the CPU heatsink and fan:

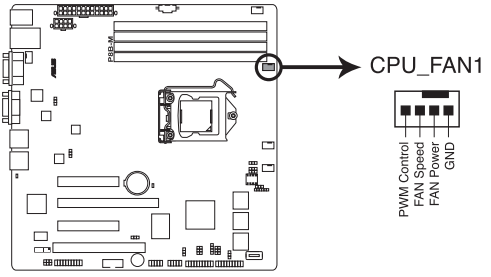
1. Place the heatsink on top of the installed CPU, making sure that the four fasteners match the holes on the motherboard.
2. Push down two fasteners at a time in a diagonal sequence to secure the heatsink and fan assembly in place.





Orient the heatsink and fan assembly such that the CPU fan cable is closest to the CPU fan connector.

3. Connect the CPU fan cable to the connector on the motherboard labeled CPU_FAN1.



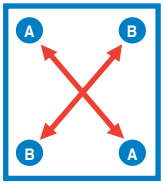
P8B-M CPU FAN connector

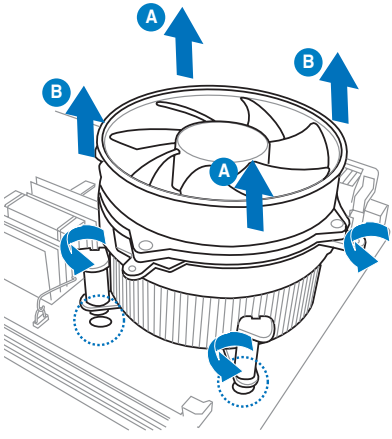
DO NOT forget to connect the CPU fan connector! Hardware monitoring errors can occur if you fail to plug this connector.

2.3.3 Uninstalling the CPU heatsink and fan

To uninstall the CPU heatsink and fan:

1. Disconnect the CPU fan cable from the connector on the motherboard.
2. Rotate each fastener counterclockwise.
3. Pull up two fasteners at a time in a diagonal sequence to disengage the heatsink and fan assembly from the motherboard.





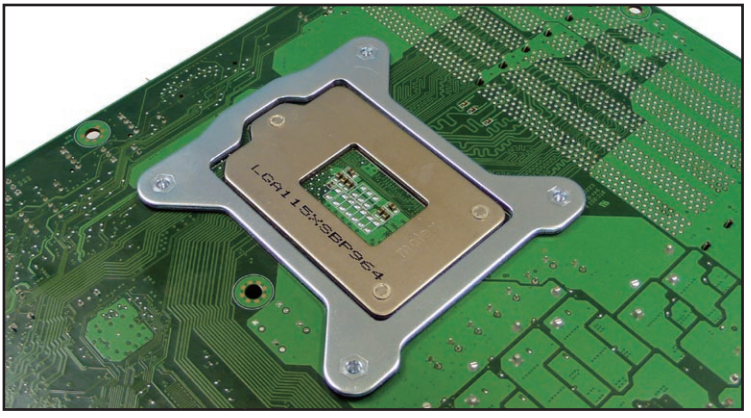
4. Carefully remove the heatsink and fan assembly from the motherboard.

2.3.4 Installing the CPU heatsink in rack

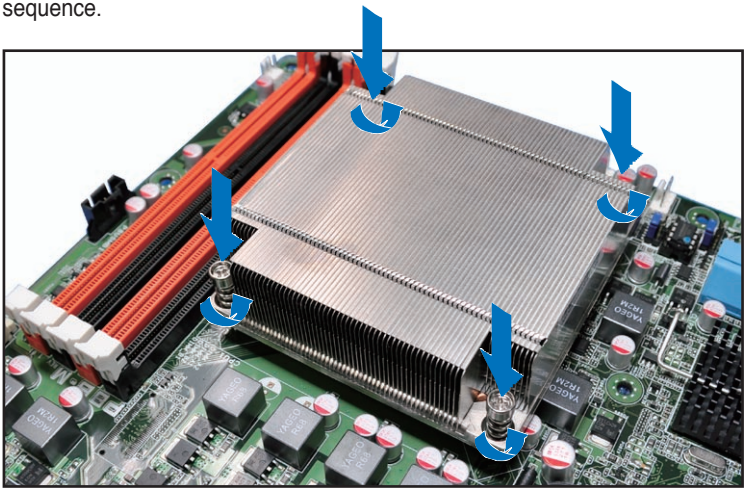
The Intel® 1155 processor requires a specially designed heatsink to ensure optimum thermal condition and performance.

- Ensure that you use qualified heatsink assembly only.
- Ensure that you have applied the thermal interface material to the top of the CPU before installing the heatsink and fan.

1. Peel off the sticker on the heatsink metal plate and affix the plate to the back of the motherboard, matching the standoffs to the heatsink screw holes.



2. Use a Phillips screwdriver to tighten the four heatsink screws in a diagonal sequence.



Ensure that the heatsink is not skewed or tilted, otherwise the CPU will overheat.

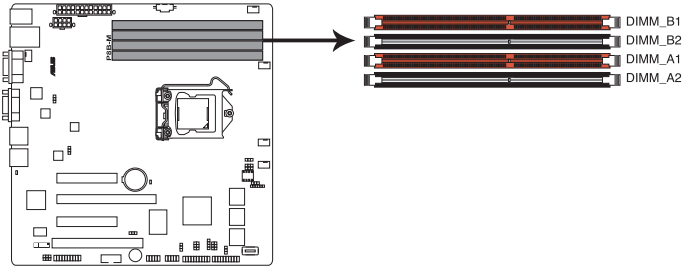
2.4 System memory

2.4.1 Overview

The motherboard comes with four Double Data Rate 3 (DDR3) Dual Inline Memory Modules (DIMM) sockets.

A DDR3 module has the same physical dimensions as a DDR2 DIMM but is notched differently to prevent installation on a DDR2 DIMM socket. DDR3 modules are developed for better performance with less power consumption.

The figure illustrates the location of the DDR3 DIMM sockets:



P8B-M 240-pin DDR3 DIMM sockets

2.4.2 Memory Configurations

You may install 1GB, 2GB, 4GB and 8GB Unbuffered with ECC DDR3 DIMMs into the DIMM sockets using the memory configurations in this section.

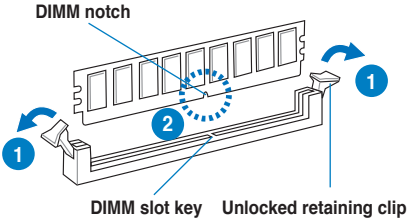
UDIMM				
DIMM Slot Per Channel	DIMM Populated per Channel	DIMM Type	Speed	Rank per DIMM
2	1	Unbuffered DDR3 ECC	1066/1333	Single Rank, Dual Rank
2	2	Unbuffered DDR3 ECC	1066/1333	Single Rank, Dual Rank

- Start installing the DIMMs from slot A1 and B1 (orange).
- Always install DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor.

2.4.3 Installing a DIMM

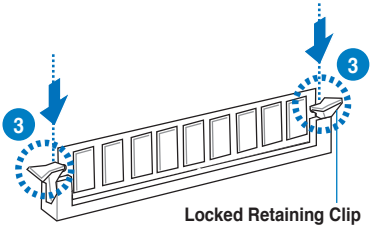
Ensure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.

1. Unlock a DIMM socket by pressing the retaining clips outward.
2. Align a DIMM on the socket such that the notch on the DIMM matches the DIMM slot key on the socket.



A DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket in the wrong direction to avoid damaging the DIMM.

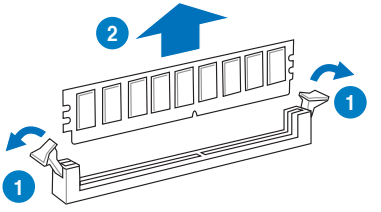
3. Hold the DIMM by both of its ends, then insert the DIMM vertically into the socket. Apply force to both ends of the DIMM simultaneously until the retaining clips snap back into place, and the DIMM cannot be pushed in any further to ensure proper sitting of the DIMM.



Always insert the DIMM into the socket VERTICALLY to prevent DIMM notch damage.

2.4.4 Removing a DIMM

1. Simultaneously press the retaining clips outward to unlock the DIMM.
2. Remove the DIMM from the socket.



Support the DIMM lightly with your fingers when pressing the retaining clips. The DIMM might get damaged when it flips out with extra force.

2.5 Expansion slots

In the future, you may need to install expansion cards. The following subsections describe the slots and the expansion cards that they support.

Ensure to unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components.

2.5.1 Installing an expansion card

To install an expansion card:

1. Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings for the card.
2. Remove the system unit cover (if your motherboard is already installed in a chassis).
3. Remove the bracket opposite the slot that you intend to use. Keep the screw for later use.
4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
5. Secure the card to the chassis with the screw you removed earlier.
6. Replace the system cover.

2.5.2 Configuring an expansion card

After installing the expansion card, configure the it by adjusting the software settings.

1. Turn on the system and change the necessary BIOS settings, if any. See Chapter 4 for information on BIOS setup.
2. Assign an IRQ to the card. Refer to the tables on the next page.
3. Install the software drivers for the expansion card.

When using PCI cards on shared slots, ensure that the drivers support “Share IRQ” or that the cards do not need IRQ assignments. Otherwise, conflicts will arise between the two PCI groups, making the system unstable and the card inoperable.

2.5.3 Interrupt assignments

Standard Interrupt assignments

IRQ	Priority	Standard function
0	1	System Timer
1	2	Keyboard Controller
2	-	Programmable Interrupt
3*	11	Communications Port (COM2)
4*	12	Communications Port (COM1)
5*	13	--
6	14	Floppy Disk Controller
7*	15	--
8	3	System CMOS/Real Time Clock
9*	4	ACPI Mode when used
10*	5	IRQ Holder for PCI Steering
11*	6	IRQ Holder for PCI Steering
12*	7	PS/2 Compatible Mouse Port
13	8	Numeric Data Processor
14*	9	Primary IDE Channel
15*	10	Secondary IDE Channel

* These IRQs are usually available for ISA or PCI devices.

2.5.4 PCI Express x8 slots (x4 link)

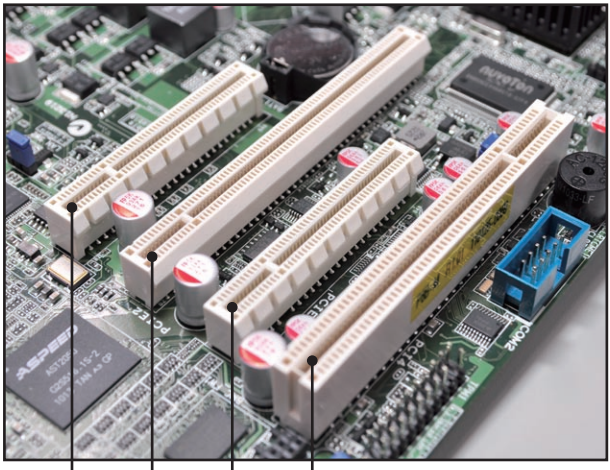
The onboard PCI Express x8 slots provide two x4 link to CPU. The slots support VGA cards and various server class high performance add-on cards.

2.5.5 PCI Express x16 slot (x16 link)

The onboard PCI Express x16 slot provides one x16 link to CPU. This slot supports VGA cards and various server class high performance add-on cards.

2.5.6 PCI slot

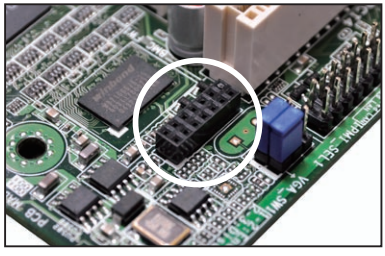
The PCI slot supports cards such as a LAN card, USB card, and other cards that comply with PCI 2.3 specifications.



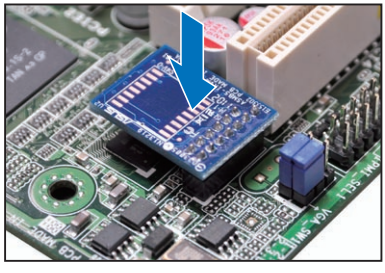
2.5.7 Installing ASMB5 management card

Follow the steps below to install an optional ASMB5 management card on your motherboard.

1. Locate the BMC_FW header on the motherboard.



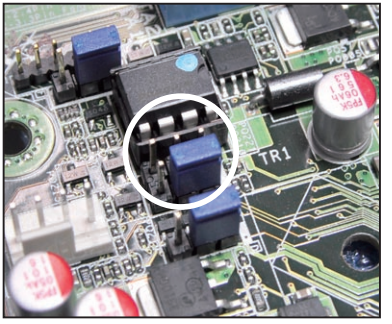
2. Orient and press the ASMB5 management card in place.



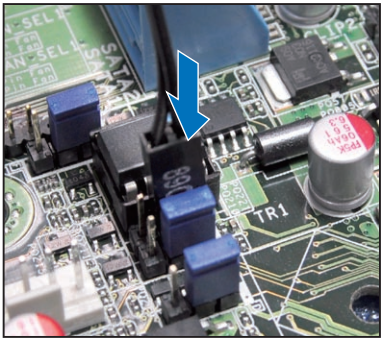
2.5.8 Connecting the thermal sensor cable

Follow the steps below to connect the thermal sensor cable to the connector on your motherboard.

1. Locate the TR1 connector on the motherboard.



2. Connect the thermal sensor cable to the connector.



3. Place the other end of the thermal sensor cable to the device you would like to monitor temperature.

2.6 Jumpers

1. Clear RTC RAM (CLRTC1)

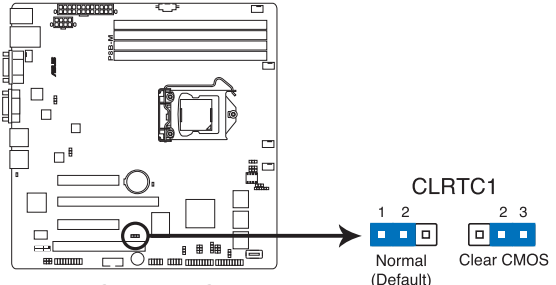
This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. Move the jumper cap from pins 1–2 (default) to pins 2–3. Keep the cap on pins 2–3 for about 5–10 seconds, then move the cap back to pins 1–2.
3. Plug the power cord and turn ON the computer.
4. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.

Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure!

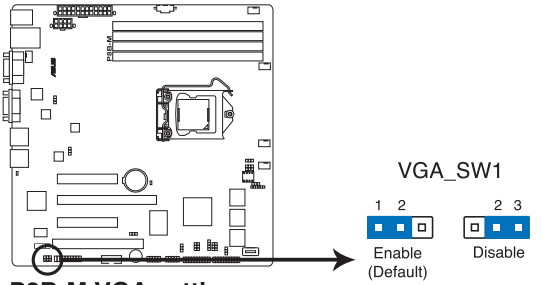
If the steps above do not help, remove the onboard battery and move the jumper again to clear the CMOS RTC RAM data. After the CMOS clearance, reinstall the battery.



P8B-M Clear RTC RAM

2. VGA controller setting (3-pin VGA_SW1)

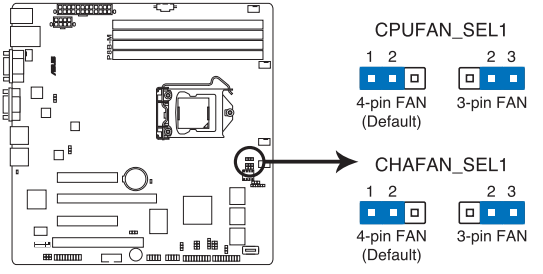
This jumper allows you to enable or disable the onboard VGA controller. Set to pins 1–2 to activate the VGA feature.



P8B-M VGA setting

3. CPU Fan and Chassis Fan control setting (3-pin CPUFAN_SEL1, CHAFAN_SEL1)

These jumpers allow you to switch for fan pin selection. The CPUFAN_SEL1 jumper is for the CPU fan control and the CHAFAN_SEL1 jumper is for the front fans and rear fans control. Set to pins 1–2 when using 4-pin fans or pins 2–3 when using 3-pin fans.

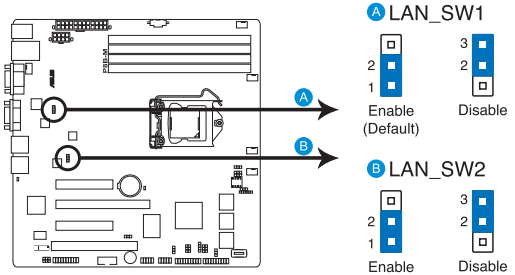


P8B-M FAN setting

- If you use a 4-pin fan but set the jumper to pin 2-3, the fan you installed may not work.
- If you use a 3-pin fan but set the jumper for a 4-pin fan, the fan control will not work and the fan you installed will always run at full speed.

4. LAN controller setting (3-pin LAN_SW1, LAN_SW2)

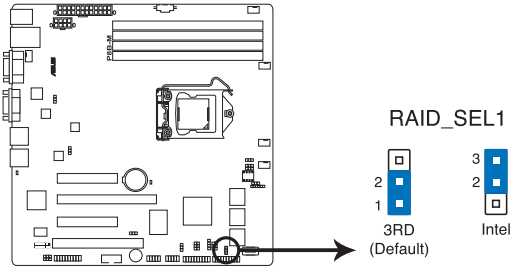
These jumpers allow you to enable or disable the onboard Intel® 82574L Gigabit LAN controllers. Set to pins 1-2 to activate the Gigabit LAN feature.



P8B-M LAN setting

5. RAID configuration utility selection (3-pin RAID_SEL1)

This jumper allows you to select the RAID configuration utility to use when you create disk arrays. Place the jumper caps over pins 1–2 if you want to use the LSI Logic Embedded SATA RAID Setup Utility (default); otherwise, place the jumper caps to pins 2–3 to use the Intel® Rapid Storage Technology.



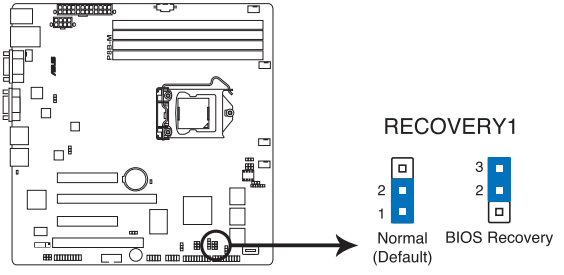
P8B-M RAID setting

6. Force BIOS recovery setting (3-pin RECOVERY1)

This jumper allows you to quickly update or recover the BIOS settings when it becomes corrupted.

To update the BIOS:

1. Prepare a USB flash disk that contains the original or latest BIOS for the motherboard (XXXXXX.ROM) and the BUPDATER.EXE utility.
2. Set the jumper to pins 2–3.
3. Insert the USB flash and turn on the system to update the BIOS.
4. Shut down the system.
5. Set the jumper back to pins 1–2.
6. Turn on the system.

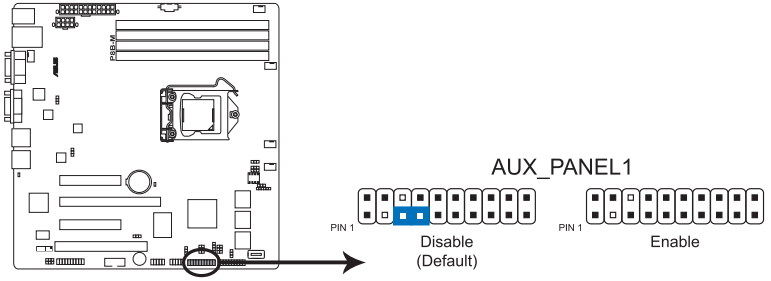


P8B-M force BIOS recovery setting

7. Chassis intrusion connector (2-pin CHASSIS)

This connector is for a chassis-mounted intrusion detection sensor or switch. Connect one end of the chassis intrusion sensor or switch cable to this connector. The chassis intrusion sensor or switch sends a high-level signal to this connector when a chassis component is removed or replaced. The signal is then generated as a chassis intrusion event.

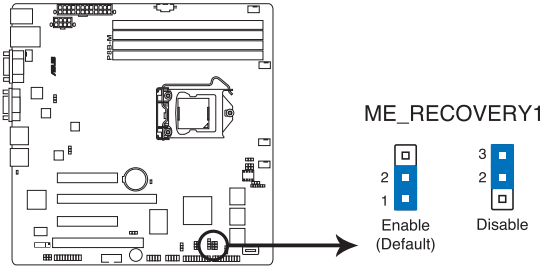
By default , the pin labeled “Chassis Signal” and “Ground” are shorted with a jumper cap. Remove the jumper caps only when you intend to use the chassis intrusion detection feature.



P8B-M Chassis intrusion connector

8. ME firmware force recovery setting (3-pin ME_RECOVERY1)

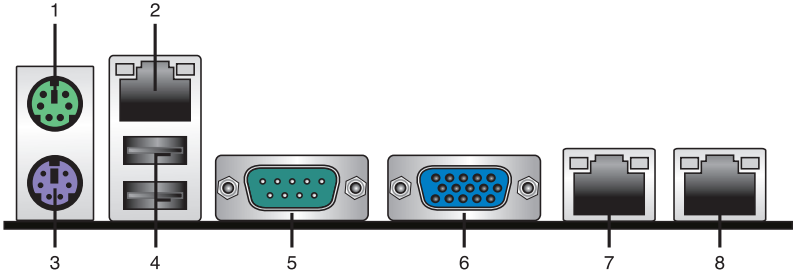
This jumper allows you to quickly recover the Intel Management Engine (ME) firmware when it becomes corrupted.



P8B-M ME firmware force recovery setting

2.7 Connectors

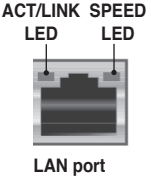
2.7.1 Rear panel connectors



1. **PS/2 mouse port (green).** This port is for a PS/2 mouse.
2. **RJ-45 port for iKVM.** This RJ-45 port functions only when you install ASMB5 management card.
3. **PS/2 keyboard port (purple).** This port is for a PS/2 keyboard.
4. **USB 2.0 ports 1 and 2.** These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.
5. **Serial (COM1) port.** This 9-pin communication port is for pointing devices or other serial devices.
6. **Video Graphics Adapter port.** This port is for a VGA monitor or other VGA-compatible devices.
7. **LAN 1 (RJ-45) port.** This port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications.
8. **LAN 2 (RJ-45) port.** This port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications.

LAN port LED indications

Activity/Link LED		Speed LED	
Status	**Description**	**Status**	**Description**
OFF	No link	OFF	10 Mbps connection
GREEN	Linked	ORANGE	100 Mbps connection
BLINKING	Data activity	GREEN	1 Gbps connection

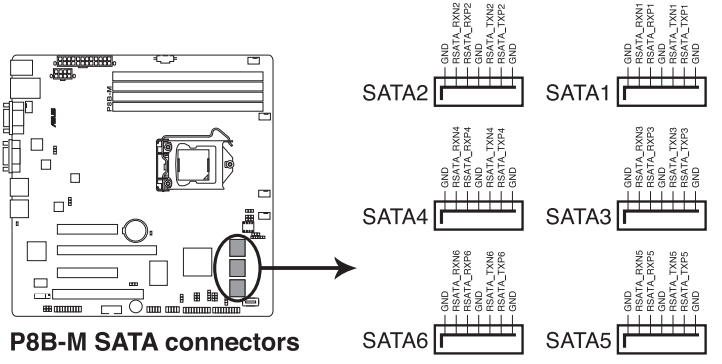


2.7.2 Internal connectors

1. Serial ATA connectors
(SATA 6Gb/s: 7-pin SATA1, SATA2 [Blue])
(SATA 3Gb/s: 7-pin SATA3, SATA4, SATA5, SATA6 [Black])

Supported by the Intel® C204 chipset, these connectors are for the Serial ATA signal cables for Serial ATA hard disk drives that allows up to 6Gb/s of data transfer rate.

If you installed Serial ATA hard disk drives, you can create a RAID 0, RAID 1, RAID 10, or RAID 5 configuration.

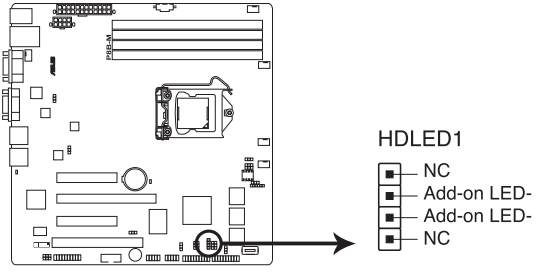


P8B-M SATA connectors

The actual data transfer rate depends on the speed of Serial ATA hard disks installed.

2. Hard disk activity LED connector (4-pin HDLED1)

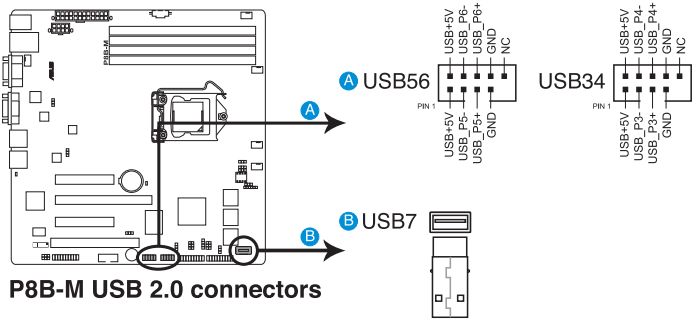
This LED connector is for the storage add-on card cable connected to the SATA or SAS add-on card. The read or write activities of any device connected to the SATA or SAS add-on card causes the front panel LED to light up.



P8B-M Hard disk activity connector

3. USB connector (10-1 pin USB34, USB56; A-Type USB7)

These connectors are for USB 2.0 ports. Connect the USB module cables to connectors USB34 and USB56, then install the modules to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps connection speed.

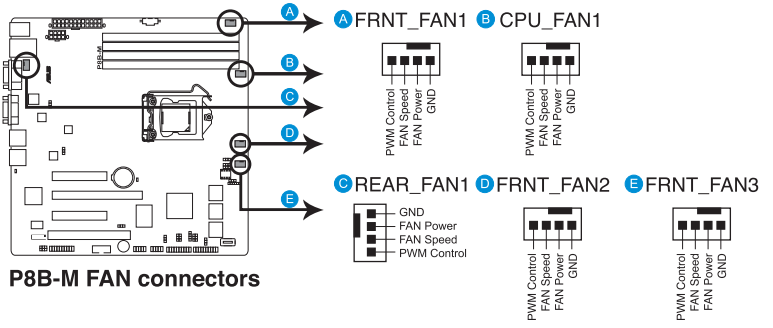


P8B-M USB 2.0 connectors

4. CPU, front and rear fan connectors (4-pin CPU_FAN1, FRNT_FAN1, FRNT_FAN2, FRNT_FAN3, REAR_FAN1)

The fan connectors support cooling fans of 350 mA–740 mA (8.88 W max.) or a total of 3.15 A–6.66 A (53.28 W max.) at +12V. Connect the fan cables to the fan connectors on the motherboard, ensuring that the black wire of each cable matches the ground pin of the connector.

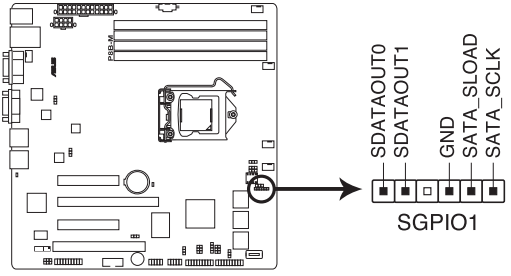
- DO NOT forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components.
- These are not jumpers! DO NOT place jumper caps on the fan connectors!
- All fans feature the ASUS Smart Fan technology.



P8B-M FAN connectors

5. Serial General Purpose Input/Output connector (6-1 pin SGPIO1)

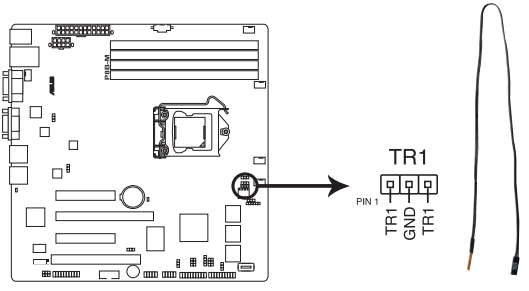
This connector is used for the SGPIO peripherals for the Intel Rapid Storage Technology RAID SATA LED.



P8B-M SGPIO1 connector

6. Thermal sensor cable connectors (3-pin TR1)

This connector is for temperature monitoring. Connect the thermal sensor cable to this connector and place the other end to the device, which you want to monitor temperature.

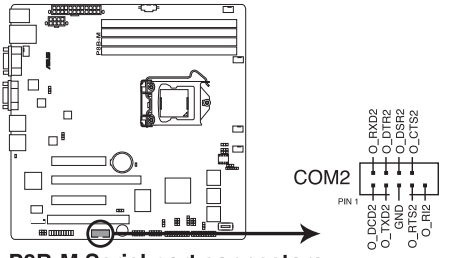


P8B-M Thermal sensor cable connector

You can connect the thermal sensor cable to either pin 1-2 or pin 2-3.

7. Serial port connector (10-1 pin COM2)

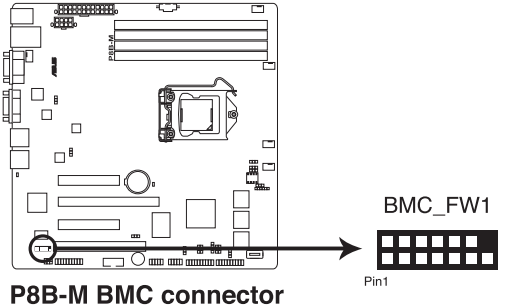
Thess connectors are for the serial (COM) ports. Connect the serial port module cable to one of these connectors, then install the module to a slot opening at the back of the system chassis.



P8B-M Serial port connectors

8. BMC header (BMC_FW1)

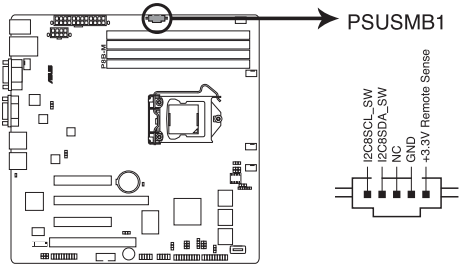
The BMC connector on the motherboard supports an ASUS® Server Management Board 5 Series (ASMB5).



P8B-M BMC connector

9. Power Supply SMBus connector (5-pin PSUSMB1)

This connector allows you to connect SMBus (System Management Bus) to the power supply unit to read PSU information. Devices communicate with an SMBus host and/or other SMBus devices using the SMBus interface.

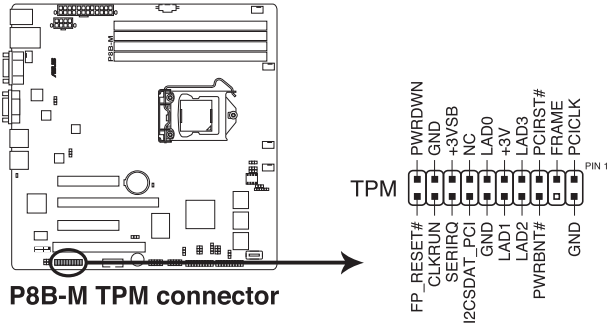


P8B-M Power supply SMBus connector

This connector functions only when you install the ASUS ASMB5.

10. TPM connector (20-1 pin TPM)

This connector supports a Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

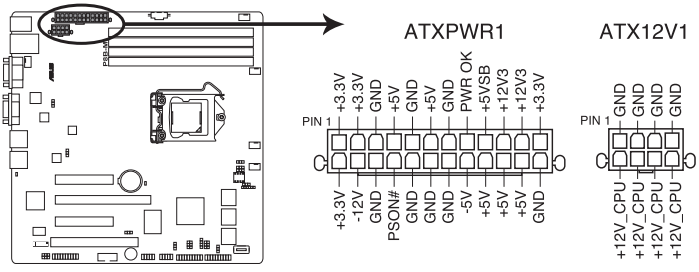


P8B-M TPM connector

11. ATX power connectors (24-pin ATXPWR1, 8-pin ATX12V1)

These connectors are for an ATX power supply plugs. The power supply plugs are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.

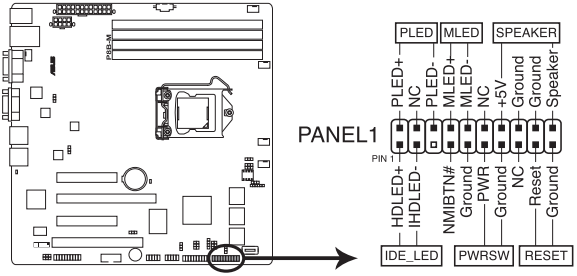
- DO NOT forget to connect the 24+8-pin power plugs; otherwise, the system will not boot up.
- Use of a PSU with a higher power output is recommended when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate.
- This motherboard supports ATX2.0 PSU or later version.
- Ensure that your power supply unit (PSU) can provide at least the minimum power required by your system.



P8B-M 24+8 pin power connectors

12. System panel connector (20-1 pin PANEL1)

This connector supports several chassis-mounted functions.

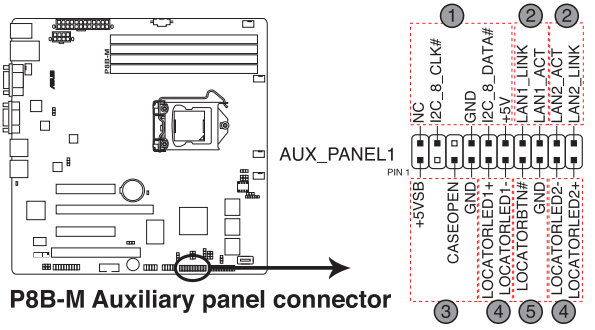


P8B-M System panel connector

1. **System power LED (3-pin PLED)**
   This 3-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.
2. **Message LED (2-pin MLED)**
   This 2-pin connector is for the message LED cable that connects to the front message LED. The message LED is controlled by Hardware monitor to indicate an abnormal event occurance.
3. **System warning speaker (4-pin SPEAKER)**
   This 4-pin connector is for the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings.
4. **Hard disk drive activity LED (2-pin HDDLED)**
   This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.
5. **Power button/soft-off button (2-pin PWRSW)**
   This connector is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.
6. **Reset button (2-pin RESET)**
   This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

13. Auxiliary panel connector (20-2 pin AUX_PANEL1)

This connector is for additional front panel features including front panel SMB, locator LED and switch, chassis intrusion, and LAN LEDs.



1. **Front panel SMB (6-1 pin FPSMB)**
   These leads connect the front panel SMBus cable.

2. **LAN activity LED (2-pin LAN1_LED, LAN2_LED)**
   These leads are for Gigabit LAN activity LEDs on the front panel.

3. **Chassis intrusion (4-1 pin CHASSIS)**
   These leads are for the intrusion detection feature for chassis with intrusion sensor or microswitch. When you remove any chassis component, the sensor triggers and sends a high-level signal to these leads to record a chassis intrusion event. The default setting is short CASEOPEN and GND pin by jumper cap to disable the function.

4. **Locator LED (2-pin LOCATORLED1 and 2-pin LOCATORLED2)**
   These leads are for the locator LED1 and LED2 on the front panel. Connect the Locator LED cables to these 2-pin connector. The LEDs will light up when the Locator button is pressed.

5. **Locator Button/Swich (2-pin LOCATORBTN)**
   These leads are for the locator button on the front panel. This button queries the state of the system locator.

This chapter describes the power up sequence, and ways of shutting down the system.

3 Powering up

Chapter summary

3

3.1 Starting up for the first time 3-3
3.2 Powering off the computer 3-4

3.1 Starting up for the first time

1. After making all the connections, replace the system case cover.
2. Be sure that all switches are off.
3. Connect the power cord to the power connector at the back of the system chassis.
4. Connect the power cord to a power outlet that is equipped with a surge protector.
5. Turn on the devices in the following order:
   a. Monitor
   b. External storage devices (starting with the last device on the chain)
   c. System power
6. After applying power, the system power LED on the system front panel case lights up. For systems with ATX power supplies, the system LED lights up when you press the ATX power button. If your monitor complies with “green” standards or if it has a “power standby” feature, the monitor LED may light up or switch between orange and green after the system LED turns on.

   The system then runs the power-on self-test or POST. While the tests are running, the BIOS beeps or additional messages appear on the screen. If you do not see anything within 30 seconds from the time you turned on the power, the system may have failed a power-on test. Check the jumper settings and connections or call your retailer for assistance.
7. At power on, hold down the <Del> key to enter the BIOS Setup. Follow the instructions in Chapter 4.

3.2 Powering off the computer

3.2.1 Using the OS shut down function

If you are using Windows® 2008 Server:

1. Click the **Start** button, move the cursor to the triangle on the right of **Log off**, and then click **Shut Down**.
2. From the **Shutdown Event Tracker**, select the option that best describes why you want to shut down the computer.
3. Ensure that the **Planned** check box is checked.
4. If necessary, key in comments.
5. Click **OK**.

3.2.2 Using the dual function power switch

While the system is ON, pressing the power switch for less than four seconds puts the system to sleep mode or to soft-off mode, depending on the BIOS setting. Pressing the power switch for more than four seconds lets the system enter the soft-off mode regardless of the BIOS setting.

This chapter tells how to change the system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

4 BIOS setup

Chapter summary

4

4.1 Managing and updating your BIOS 4-3
4.2 BIOS setup program 4-7
4.3 Main menu 4-10
4.4 Event Logs menu 4-12
4.5 Advanced menu 4-14
4.6 Monitor menu 4-25
4.7 Boot menu 4-26
4.8 Tool menu 4-28
4.9 Exit menu 4-28

4.1 Managing and updating your BIOS

The following utilities allow you to manage and update the motherboard Basic Input/Output System (BIOS) setup:

1. **ASUS CrashFree BIOS 3** (To recover the BIOS using a bootable USB flash disk drive when the BIOS file fails or gets corrupted.)
2. **ASUS EZ Flash 2** (Updates the BIOS using a USB flash disk.)
3. **BUPDATER utility** (Updates the BIOS in DOS mode using a bootable USB flash disk drive.)

Refer to the corresponding sections for details on these utilities.

Save a copy of the original motherboard BIOS file to a bootable USB flash disk drive in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the BUPDATER utility.

4.1.1 ASUS CrashFree BIOS 3 utility

The ASUS CrashFree BIOS 3 is an auto recovery tool that allows you to restore the BIOS file when it fails or gets corrupted during the updating process. You can update a corrupted BIOS file using a USB flash drive that contains the updated BIOS file.

Prepare a USB flash drive containing the updated motherboard BIOS before using this utility.

Recovering the BIOS from a USB flash drive

To recover the BIOS from a USB flash drive:

1. Insert the USB flash drive with the original or updated BIOS file to one USB port on the system.
2. The utility will automatically recover the BIOS. It resets the system when the BIOS recovery finished.

DO NOT shut down or reset the system while recovering the BIOS! Doing so would cause system boot failure!

The recovered BIOS may not be the latest BIOS version for this motherboard. Visit the ASUS website at www.asus.com to download the latest BIOS file.

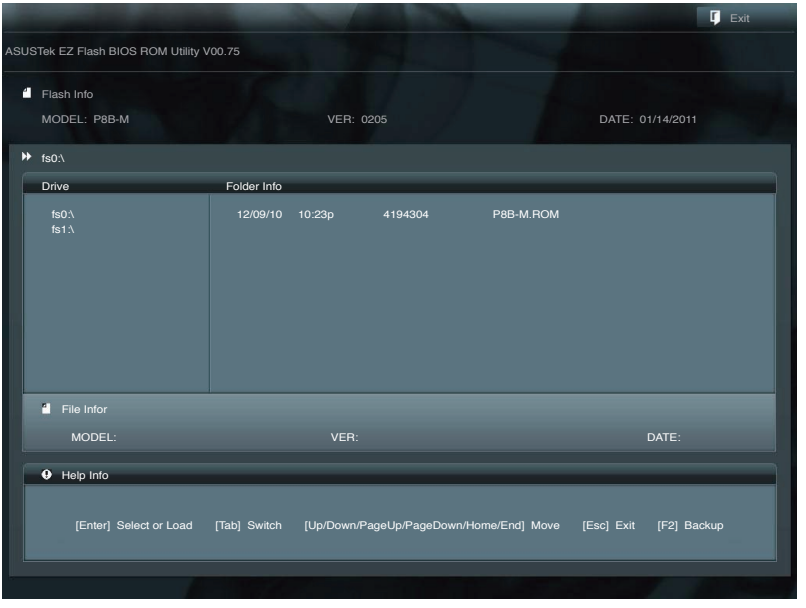
4.1.2 ASUS EZ Flash Utility

The ASUS EZ Flash Utility feature allows you to update the BIOS without having to use a DOS-based utility.

Before you start using this utility, download the latest BIOS from the ASUS website at www.asus.com.

To update the BIOS using EZ Flash Utility

1. Insert the USB flash disk that contains the latest BIOS file to the USB port.
2. Enter the BIOS setup program. Go to the **Tool** menu to select **ASUS EZ Flash Utility** and press <Enter> to enable it.



3. Press <Tab> to switch to the **Drive** field.
4. Press the Up/Down arrow keys to find the USB flash disk that contains the latest BIOS, and then press <Enter>.
5. Press <Tab> to switch to the **Folder Info** field.
6. Press the Up/Down arrow keys to find the BIOS file, and then press <Enter> to perform the BIOS update process. Reboot the system when the update process is done.

- This function can support devices such as a USB flash disk with FAT 32/16 format and single partition only.
- DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure!

Ensure to load the BIOS default settings to ensure system compatibility and stability. Press <F5> and select **Yes** to load the BIOS default settings.

4.1.3 BUPDATER utility

The succeeding BIOS screens are for reference only. The actual BIOS screen displays may not be the same as shown.

The BUPDATER utility allows you to update the BIOS file in DOS environment using a bootable USB flash disk drive with the updated BIOS file.

Updating the BIOS file

To update the BIOS file using the BUPDATER utility:

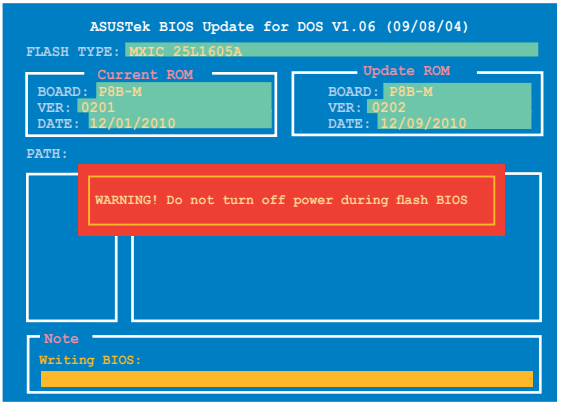
1. Visit the ASUS website at www.asus.com and download the latest BIOS file for the motherboard. Save the BIOS file to a bootable USB flash disk drive.
2. Copy the BUPDATER utility (BUPDATER.exe) from the ASUS support website at support.asus.com to the bootable USB flash disk drive you created earlier.
3. Boot the system in DOS mode, then at the prompt, type:

   BUPDATER /i[filename].ROM

   where [filename] is the latest or the original BIOS file on the bootable USB flash disk drive, then press <Enter>.

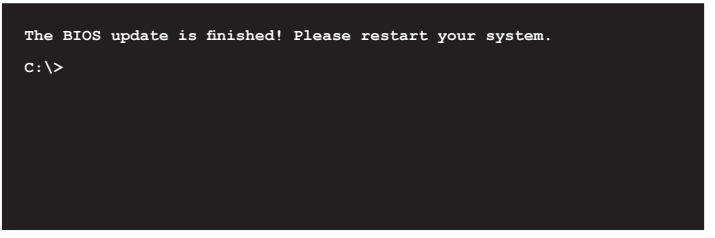
```
A:\>BUPDATER /i[file name].ROM
```

The utility verifies the file, then starts updating the BIOS file.



DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure!

5. The utility returns to the DOS prompt after the BIOS update process is completed. Reboot the system from the hard disk drive.



4.2 BIOS setup program

This motherboard supports a programmable firmware chip that you can update using the provided utility described in section **4.1 Managing and updating your BIOS**.

Use the BIOS Setup program when you are installing a motherboard, reconfiguring your system, or prompted to “Run Setup.” This section explains how to configure your system using this utility.

Even if you are not prompted to use the Setup program, you can change the configuration of your computer in the future. For example, you can enable the security password feature or change the power management settings. This requires you to reconfigure your system using the BIOS Setup program so that the computer can recognize these changes and record them in the CMOS RAM of the firmware chip.

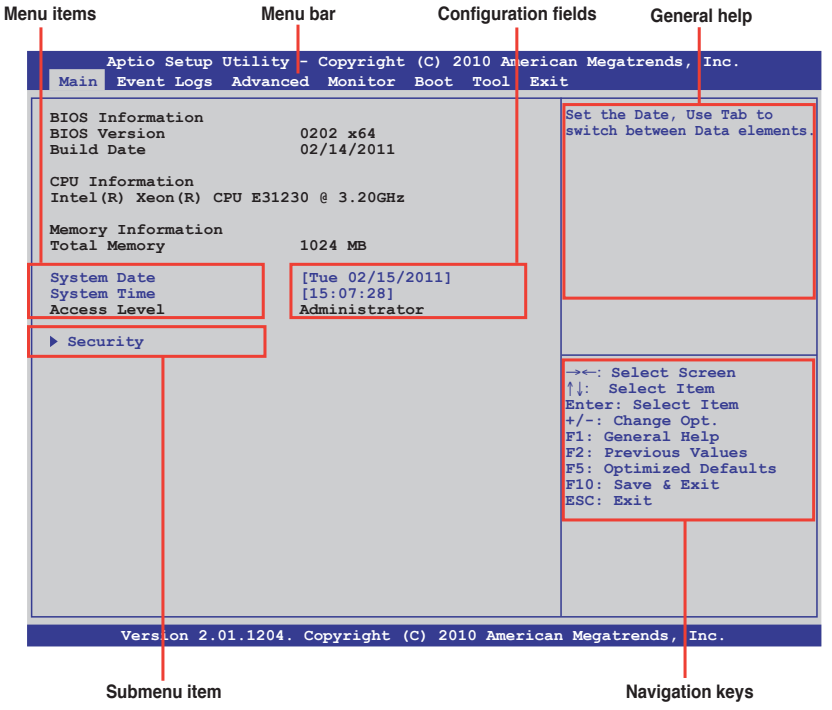
The firmware chip on the motherboard stores the Setup utility. When you start up the computer, the system provides you with the opportunity to run this program. Press <Del> during the Power-On Self-Test (POST) to enter the Setup utility; otherwise, POST continues with its test routines.

If you wish to enter Setup after POST, restart the system by pressing <Ctrl+Alt+Delete>, or by pressing the reset button on the system chassis. You can also restart by turning the system off and then back on. Do this last option only if the first two failed.

The Setup program is designed to make it as easy to use as possible. Being a menu-driven program, it lets you scroll through the various sub-menus and make your selections from the available options using the navigation keys.

- The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Press <F5> and select **Yes** to load the BIOS default settings.
- The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.
- Visit the ASUS website (www.asus.com) to download the latest BIOS file for this motherboard.

4.2.1 BIOS menu screen



4.2.2 Menu bar

The menu bar on top of the screen has the following main items:

Main	For changing the basic system configuration
Event Logs	For changing the event log settings
Advanced	For changing the advanced system settings
Monitor	For displaying the system temperature, power status, and changing the fan settings
Boot	For changing the system boot configuration
Tool	For configuring options for special functions
Exit	For selecting the exit options

To select an item on the menu bar, press the right or left arrow key on the keyboard until the desired item is highlighted.

4.2.3 Menu items

The highlighted item on the menu bar displays the specific items for that menu. For example, selecting **Main** shows the Main menu items.

The other items (Event Logs, Advanced, Monitor, Boot, Tool, and Exit) on the menu bar have their respective menu items.

4.2.4 Submenu items

A solid triangle before each item on any menu screen means that the item has a submenu. To display the submenu, select the item and press <Enter>.

4.2.5 Navigation keys

At the bottom right corner of a menu screen are the navigation keys for the BIOS setup program. Use the navigation keys to select items in the menu and change the settings.

4.2.6 General help

At the top right corner of the menu screen is a brief description of the selected item.

4.2.7 Configuration fields

These fields show the values for the menu items. If an item is user-configurable, you can change the value of the field opposite the item. You cannot select an item that is not user-configurable.

A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it and press <Enter> to display a list of options.

4.2.8 Pop-up window

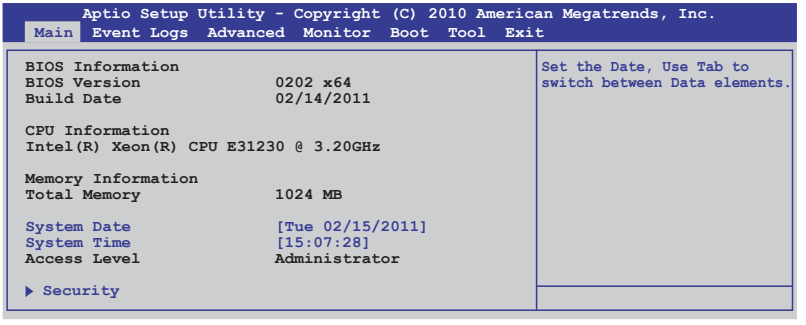
Select a menu item and press <Enter> to display a pop-up window with the configuration options for that item.

4.2.9 Scroll bar

A scroll bar appears on the right side of a menu screen when there are items that do not fit on the screen. Press the Up/Down arrow keys or <Page Up> /<Page Down> keys to display the other items on the screen.

4.3 Main menu

When you enter the BIOS Setup program, the Main menu screen appears. The Main menu provides you an overview of the basic system information, and allows you to set the system date, time, language, and security settings.


Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Main Event Logs Advanced Monitor Boot Tool Exit
BIOS Information
BIOS Version 0202 x64
Build Date 02/14/2011
CPU Information
Intel(R) Xeon(R) CPU E31230 @ 3.20GHz
Memory Information
Total Memory 1024 MB
System Date [Tue 02/15/2011]
System Time [15:07:28]
Access Level Administrator
Security
Set the Date, Use Tab to switch between Data elements.

4.3.1 System Date [Day xx/xx/xxxx]

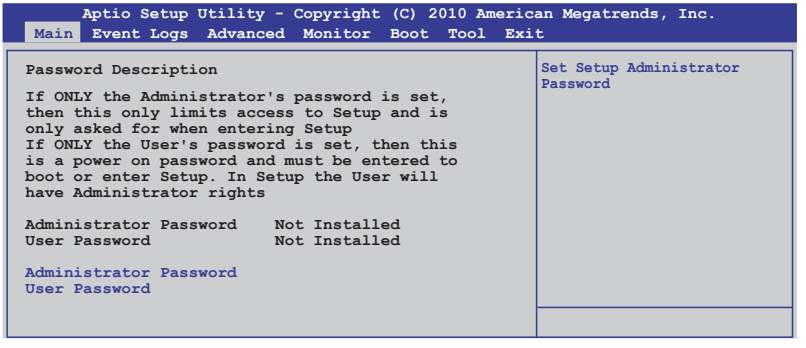
Allows you to set the system date.

4.3.2 System Time [xx:xx:xx]

Allows you to set the system time.

4.3.3 Security

The Security menu items allow you to change the system security settings.


Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Main Event Logs Advanced Monitor Boot Tool Exit
Password Description
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights
Administrator Password Not Installed
User Password Not Installed
Administrator Password
User Password
Set Setup Administrator Password

- If you have forgotten your BIOS password, erase the CMOS Real Time Clock (RTC) RAM to clear the BIOS password. See section **2.6 Jumpers** for information on how to erase the RTC RAM.
- The **Administrator** or **User Password** items on top of the screen show the default **Not Installed**. After you set a password, these items show **Installed**.

Administrator Password

If you have set an administrator password, we recommend that you enter the administrator password for accessing the system. Otherwise, you might be able to see or change only selected fields in the BIOS setup program.

To set an administrator password:

1. Select the **Administrator Password** item and press <Enter>.
2. From the **Create New Password** box, key in a password, then press <Enter>.
3. Confirm the password when prompted.

To change an administrator password:

1. Select the **Administrator Password** item and press <Enter>.
2. From the **Enter Current Password** box, key in the current password, then press <Enter>.
3. From the **Create New Password** box, key in a new password, then press <Enter>.
4. Confirm the password when prompted.

To clear the administrator password, follow the same steps as in changing an administrator password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the **Administrator Password** item on top of the screen shows **Not Installed**.

User Password

If you have set a user password, you must enter the user password for accessing the system. The **User Password** item on top of the screen shows the default **Not Installed**. After you set a password, this item shows **Installed**.

To set a user password:

1. Select the **User Password** item and press <Enter>.
2. From the **Create New Password** box, key in a password, then press <Enter>.
3. Confirm the password when prompted.

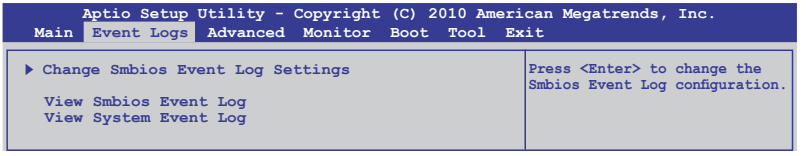
To change a user password:

1. Select the **User Password** item and press <Enter>.
2. From the **Enter Current Password** box, key in the current password, then press <Enter>.
3. From the **Create New Password** box, key in a new password, then press <Enter>.
4. Confirm the password when prompted.

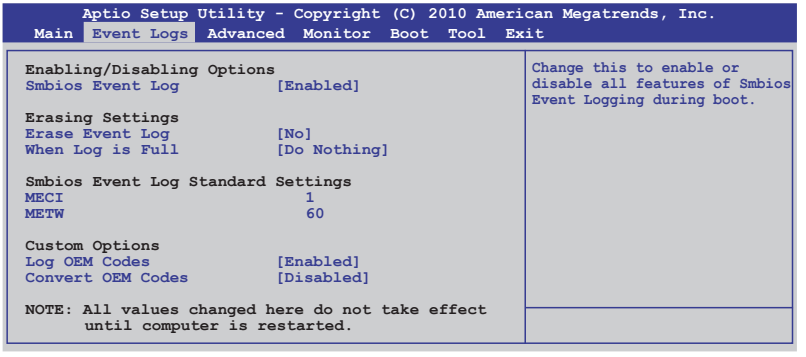
To clear the user password, follow the same steps as in changing a user password, but press <Enter> when prompted to create/confirm the password. After you clear the password, the **User Password** item on top of the screen shows **Not Installed**.

4.4 Event Logs menu

The Event Logs menu items allow you to change the event log settings and view the system event logs.


Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Main Event Logs Advanced Monitor Boot Tool Exit
Change Smbios Event Log Settings
View Smbios Event Log
View System Event Log
Press <Enter> to change the Smbios Event Log configuration.

Change Smbios Event Log Settings


Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Main Event Logs Advanced Monitor Boot Tool Exit
Enabling/Disabling Options
Smbios Event Log [Enabled]
Erasing Settings
Erase Event Log [No]
When Log is Full [Do Nothing]
Smbios Event Log Standard Settings
MECI 1
METW 60
Custom Options
Log OEM Codes [Enabled]
Convert OEM Codes [Disabled]
NOTE: All values changed here do not take effect until computer is restarted.
Change this to enable or disable all features of Smbios Event Logging during boot.

Smbios Event Log [Enabled]

Allows you to enable or disable all features of Smbios event logging.
Configuration option: [Disabled] [Enabled]

Erase Event Log [No]

Allows you to select the options for erasing Smbios event log.
Configuration options: [No] [Yes, Next reset] [Yes, Every reset]

When Log is Full [Do Nothing]

Allows you to select the options for reaction when the event logs are full.
Configuration options: [Do Nothing] [Erase Immediately]

MECI [xx]

Allows you to adjust value for the MECI (Multiple Event Count Increment), which is the number of occurrences of a duplicate event that must pass before the multiple-event counter associated with log entry is updated. Use the <+> and <-> keys to adjust the value. The values range from 1 to 255.

METW [xx]

Allows you to adjust value for the METW (Multiple Event Time Window), which is the number of minutes that must pass between duplicate log entries which utilize a multiple-event counter. Use the <+> and <-> keys to adjust the value. The values range from 0 to 99.

Log OEM Codes [Enabled]
Allows you to enable or disable the logging of EFI status codes as OEM codes. Configuration option: [Disabled] [Enabled]

Convert OEM Codes [Disabled]
Allows you to enable or disable the converting of EFI status codes to standard Smbios types. Configuration option: [Disabled] [Enabled]

View Smbios Event Log

Press <Enter> to view the Smbios event logs.

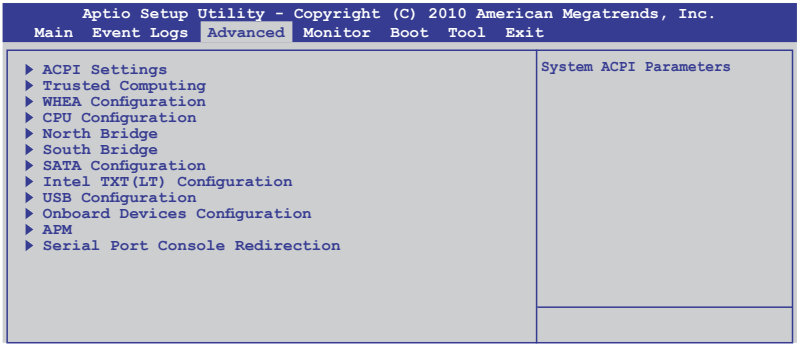
View System Event Log

Press <Enter> to view the system event logs.

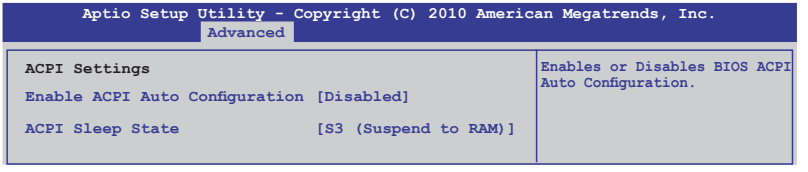
4.5 Advanced menu

The Advanced menu items allow you to change the settings for the CPU and other system devices.

Take caution when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction.



4.5.1 ACPI Settings


Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
Advanced
ACPI Settings
Enable ACPI Auto Configuration [Disabled]
ACPI Sleep State [S3 (Suspend to RAM)]
Enables or Disables BIOS ACPI Auto Configuration.

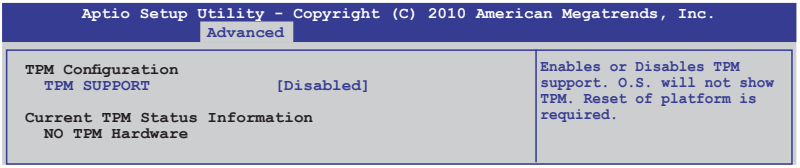
Enable ACPI Auto Configuration [Disabled]

Allows you to enable or disable ACPI Auto Configuration.
Configuration options: [Disabled] [Enabled]

ACPI Sleep State [S3 (Suspend to RAM)]

Allows you to set the ACPI Sleep State.
Configuration options: [Suspend Disabled] [S1 (CPU Stop Clock)] [S3 (Suspend to RAM)]

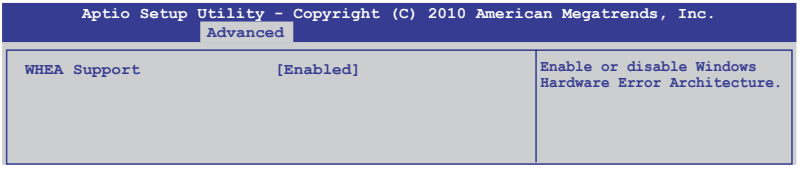
4.5.2 Trusted Computing


Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Advanced
TPM Configuration
TPM SUPPORT [Disabled]
Current TPM Status Information
NO TPM Hardware
Enables or Disables TPM support. O.S. will not show TPM. Reset of platform is required.

TPM SUPPORT [Disabled]

Allows you to enable or disable the TPM support.
Configuration options: [Disabled] [Enabled]

4.5.3 WHEA Configuration

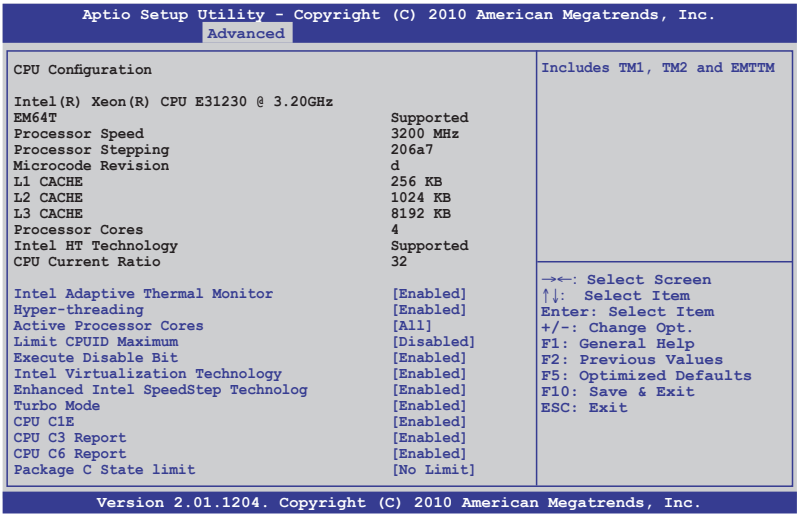

Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Advanced
WHEA Support [Enabled]
Enable or disable Windows Hardware Error Architecture.

WHEA Support [Enabled]

Allows you to enable or disable the Windows Hardware Error Architecture support.
Configuration options: [Disabled] [Enabled]

4.5.4 CPU Configuration

The items in this menu show the CPU-related information that the BIOS automatically detects. Some items may not appear if your CPU does not support the related functions.



Intel Adaptive Thermal Monitor [Enabled]

Allows you to enable or disable the CPU thermal monitor function.
Configuration options: [Disabled] [Enabled]

Hyper-threading [Enabled]

This item appears only when you install a CPU with Hyper-threading support and allows you to enable or disable the Intel Hyper-Threading Technology function. When disabled, only one thread per activated core is enabled.
Configuration options: [Enabled] [Disabled]

Active Processor Cores [All]

Allows you to choose the number of CPU cores to activate in each processor package. Configuration options: [All] [1] [2] [3]

Limit CPUID Maximum [Disabled]

Setting this item to [Enabled] allows legacy operating systems to boot even without support for CPUs with extended CPUID functions.
Configuration options: [Disabled] [Enabled]

Execute Disable Bit [Enabled]

Allows you to enable or disable the No-Execution Page Protection Technology. Setting this item to [Disabled] forces the XD feature flag to always return to zero (0). Configuration options: [Disabled] [Enabled]

Intel Virtualization Tech [Enabled]

The Intel® Virtualization Technology allows a hardware platform to run multiple operating systems separately and simultaneously, enabling one system to virtually function as several systems. Configuration options: [Disabled] [Enabled]

Enhanced Intel SpeedStep Technology [Enabled]

Allows you to enable or disable the Enhanced Intel® SpeedStep Technology (EIST). Configuration options: [Disabled] [Enabled]

Turbo Mode [Enabled]

This item appears only when you set the **Enhanced Intel SpeedStep Technology** item to [Enabled] and allows you to enable or disable the Intel® Turbo Mode Technology. Configuration options: [Disabled] [Enabled]

CPU C1E [Enabled]

[Enabled] Enables the C1E support function. This item should be enabled in order to enable the Enhanced Halt State.

[Disabled] Disables this function.

CPU C3 Report [Enabled]

Allows you to disable or enable the CPU C3 report to OS.

CPU C6 Report [Enabled]

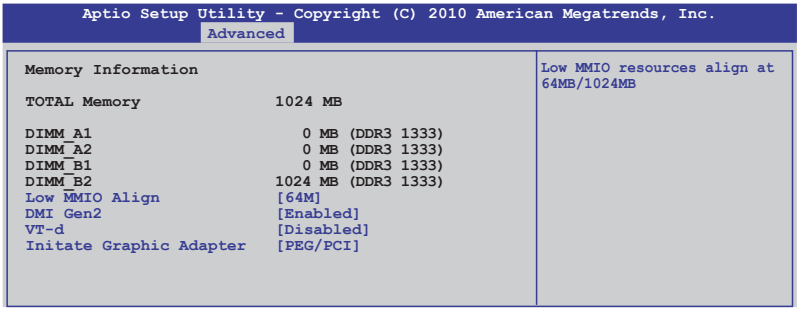
Allows you to disable or enable the CPU C6 report to OS.

Package C State limit [No Limit]

Configuration options: [C0] [C1] [C6] [No Limit]

4.5.5 North Bridge

The North Bridge is built in the CPU.


Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Advanced
Memory Information
TOTAL Memory 1024 MB
DIMM_A1 0 MB (DDR3 1333)
DIMM_A2 0 MB (DDR3 1333)
DIMM_B1 0 MB (DDR3 1333)
DIMM_B2 1024 MB (DDR3 1333)
Low MMIO Align [64M]
DMI Gen2 [Enabled]
VT-d [Disabled]
Initate Graphic Adapter [PEG/PCI]
Low MMIO resources align at 64MB/1024MB

Low MMIO Align [64M]

Allows you to select the options for the Low MMIO Align.
Configuration options: [64M] [1024M]

DMI Gen2 [Enabled]

Allows you to enable or disable the DMI Gen2.
Configuration options: [Disabled] [Enabled]

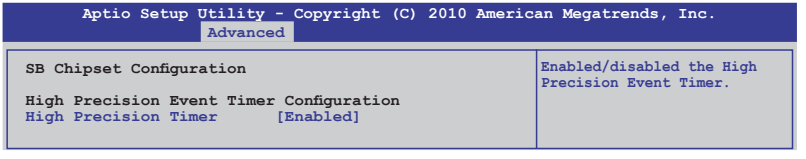
VT-d [Disabled]

Allows you to enable or disable the VT-d.
Configuration options: [Disabled] [Enabled]

Initiate Graphic Adapter [PEG/PCI]

Allows you to decide which graphics controller to use as the primary boot device.
Configuration options: [PCI/PEG] [PEG/PCI]

4.5.6 South Bridge

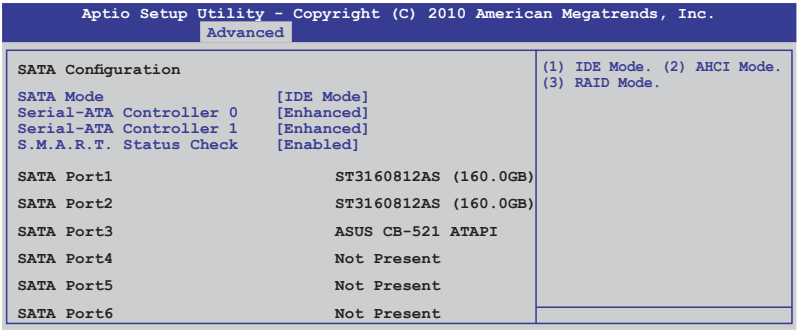

Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Advanced
SB Chipset Configuration
High Precision Event Timer Configuration
High Precision Timer [Enabled]
Enabled/disabled the High Precision Event Timer.

High Precision Timer [Enabled]

Allows you to enable or disable the High Precision Event Timer.
Configuration options: [Enabled] [Disabled]

4.5.7 SATA Configuration

While entering Setup, the BIOS automatically detects the presence of SATA devices. The SATA Port items show **Not Present** if no SATA device is installed to the corresponding SATA port.


Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Advanced
SATA Configuration
SATA Mode [IDE Mode]
Serial-ATA Controller 0 [Enhanced]
Serial-ATA Controller 1 [Enhanced]
S.M.A.R.T. Status Check [Enabled]
SATA Port1 ST3160812AS (160.0GB)
SATA Port2 ST3160812AS (160.0GB)
SATA Port3 ASUS CB-521 ATAPI
SATA Port4 Not Present
SATA Port5 Not Present
SATA Port6 Not Present
(1) IDE Mode. (2) AHCI Mode.
(3) RAID Mode.

SATA Mode [IDE Mode]

Allows you to set the SATA configuration.
Configuration options: [Disabled] [IDE Mode] [AHCI Mode] [RAID Mode]

- If you want to use the Serial ATA hard disk drives as Parallel ATA physical storage devices, keep the default setting [IDE Mode].
- If you want the Serial ATA hard disk drives to use the Advanced Host Controller Interface (AHCI), set this item to [AHCI Mode]. The AHCI allows the onboard storage driver to enable advanced Serial ATA features that increases storage performance on random workloads by allowing the drive to internally optimize the order of commands.
- If you want to create RAID sets with LSI MegaRAID utility, or Intel® Rapid Storage Technology from the Serial ATA hard disk drives, set this item to [RAID Mode].

Serial-ATA Controller 0 [Enhanced]

This item appears only when you set the **SATA Mode** item to [IDE Mode]. Set to [Enhanced] to support two SATA 6.0 Gb/s and two SATA 3.0 Gb/s devices. Set to [Compatible] when using Windows 98/NT/2000/MS-DOS. Up to four SATA devices are supported under these operating systems.
Configuration options: [Disabled] [Enhanced] [Compatible]

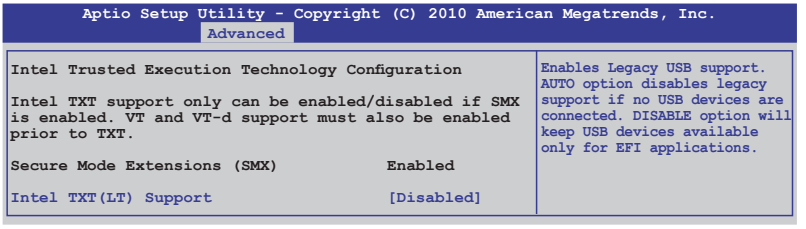
Serial-ATA Controller 1 [Enhanced]

This item appears only when you set the **SATA Mode** item to [IDE Mode]. Set to [Enhanced] to support two SATA 3.0 Gb/s devices. Configuration options: [Disabled] [Enhanced]

S.M.A.R.T. Status Check [Enabled]

S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) is a monitor system. When read/write of your hard disk errors occur, this feature allows the hard disk to report warning messages during the POST.
Configuration options: [Enabled] [Disabled]

4.5.8 Intel TXT(LT) Configuration

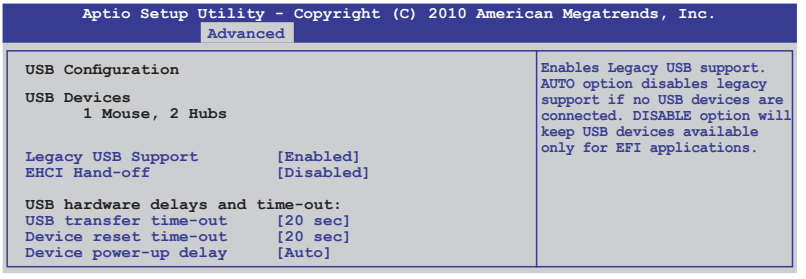

Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
Advanced
Intel Trusted Execution Technology Configuration
Intel TXT support only can be enabled/disabled if SMX is enabled. VT and VT-d support must also be enabled prior to TXT.
Secure Mode Extensions (SMX) Enabled
Intel TXT(LT) Support [Disabled]
Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.

Intel TXT(LT) Support [Disabled]

Allows you to enable or disable the Intel Trusted Execution Technology (TXT) feature. Configuration options: [Disabled] [Enabled]

The **Intel TXT(LT) Support** item requires a Trusted Platform Module (TPM) to be installed on the motherboard to enable.

4.5.9 USB Configuration


Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
Advanced
USB Configuration
USB Devices
1 Mouse, 2 Hubs
Legacy USB Support [Enabled]
EHCI Hand-off [Disabled]
USB hardware delays and time-out:
USB transfer time-out [20 sec]
Device reset time-out [20 sec]
Device power-up delay [Auto]
Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.

The **USB Devices** item shows the auto-detected values. If no USB device is detected, the item shows **None**.

Legacy USB Support [Enabled]

Allows you to enable or disable support for legacy USB devices. Setting to [Auto] allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled. Configuration options: [Disabled] [Enabled] [Auto]

EHCI Hand-off [Disabled]

Enables or disables the BIOS EHCI hand-off support.
Configuration options: [Disabled] [Enabled]

USB transfer time-out [20 sec]

Allows you to select the USB transfer time-out value.
Configuration options: [1 sec] [5 sec] [10 sec] [20 sec]

Device reset time-out [20 sec]

Allows you to select the USB device reset time-out value.
Configuration options: [10 sec] [20 sec] [30 sec] [40 sec]

Device power-up delay [Auto]

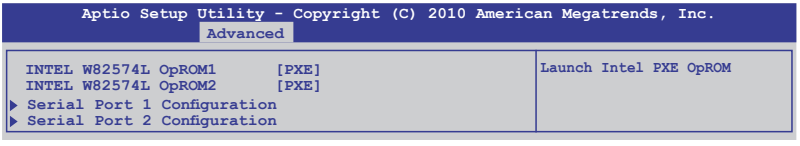
Configuration options: [Auto] [Manual]

Device power-up delay in seconds [XX]

This item appears only when you set the **Device power-up delay** item to [manual]. Use the <+> and <-> keys to adjust the value. The values range from 1 to 40 with a one-second interval.

4.5.10 Onboard Devices Configuration

The Onboard Devices Configuration menu items allow you to change the advanced settings for onboard devices.


Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Advanced
INTEL W82574L OpROM1 [PXE]
INTEL W82574L OpROM2 [PXE]
Serial Port 1 Configuration
Serial Port 2 Configuration
Launch Intel PXE OpROM

INTEL W82574L OpROM1/OpROM2 [PXE]

Allows you to select the options for the OptionRom of the Intel LAN controllers.
Configuration options: [Disabled] [PXE] [iSCSI]

Serial Port 1/2 Configuration

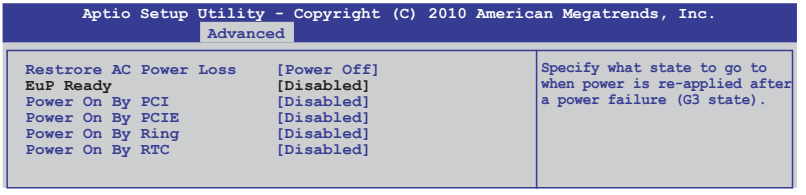
The sub-items in this menu allow you to set the serial port 1/2 configuration.

Serial Port [Enabled]

Allows you to enable or disable the serial port (COM).
Configuration options: [Enabled] [Disabled]

Change Settings [Auto]
Allows you to select the serial port base address.
Configuration options: [Auto] [IO=3F8h; IRQ=4]
[IO=3F8h: IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12]
[IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12]
[IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12]
[IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12]

4.5.11 APM


Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
Advanced
Restrore AC Power Loss [Power Off]
EuP Ready [Disabled]
Power On By PCI [Disabled]
Power On By PCIE [Disabled]
Power On By Ring [Disabled]
Power On By RTC [Disabled]
Specify what state to go to when power is re-applied after a power failure (G3 state).

Restore AC Power Loss [Power Off]

When set to [Power Off], the system goes into off state after an AC power loss. When set to [Power On], the system will reboot after an AC power loss. When set to [Last State], the system goes into either off or on state, whatever the system state was before the AC power loss.
Configuration options: [Power Off] [Power On] [Last State]

EuP Ready [Disabled]

When set to [Enabled], all other PME options will be switched off.
Configuration options: [Disabled] [Enabled]

Power On By PCI [Disabled]

[Disabled] Disables the PME to wake up from S5 by PCI devices.

[Enabled] Allows you to turn on the system through a PCI LAN or modem card. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead.

Power On By PCIE [Disabled]

[Disabled] Disables the PCIE devices to generate a wake event.

[Enabled] Enables the PCIE devices to generate a wake event.

Power On By Ring [Disabled]

[Disabled] Disables Ring to generate a wake event.

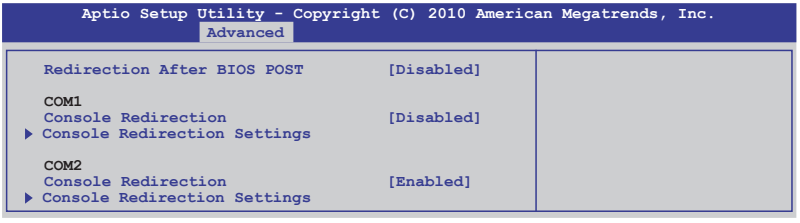
[Enabled] Enables Ring to generate a wake event.

Power On By RTC [Disabled]

[Disabled] Disables RTC to generate a wake event.

[Enabled] When set to [Enabled], the items **RTC Alarm Date (Days)** and **Hour/Minute/Second** will become user-configurable with set values.

4.5.12 Serial Port Console Redirection



Redirection After BIOS POST [Disabled]

Enables or disables the redirection after BIOS POST feature.
Configuration options: [Disabled] [Enabled]

COM1
Console Redirection [Disabled]

Enables or disables the console redirection feature.
Configuration options: [Disabled] [Enabled]

Console Redirection Settings

This item becomes configurable only when you enable the **Console Redirection** item. The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

Terminal Type [VT-UTF8]

Allows you to set the terminal type.

[VT100] ASCII char set.

[VT100+] Extends VT100 to support color, function keys, et.

[VT-UTF8] Uses UTF8 encoding to map Unicode chars onto 1 or more bytes

[ANSI] Extended ASCII char set

Bits per second [57600]

Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.
Configuration options: [9600] [19200] [38400] [57600] [115200]

Data Bits [8]
Configuration options: [7] [8]

Parity [None]
A parity bit can be sent with the data bits to detect some transmission errors. [Mark] and [Space] parity do not allow for error detection.

[Even] parity bit is 0 if the num of 1's in the data bits is even

[Odd] parity bit is 0 if num of 1's in the data bits is odd

[Mark] parity bit is always 1

[Space] parity bit is always 0

Stop Bits [1]
Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning.) The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit. Configuration options: [1] [2]

Flow Control [Hardware RTS/CTS]
Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a "stop" signal can be sent to stop the data flow. Once the buffers are empty, a "start" signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals. Configuration options: [None] [Hardware RTS/CTS]

Recorder Mode [Disabled]
With this mode enabled only text will be sent. This is to capture Terminal data. Configuration options: [Disabled] [Enabled]

Legacy OS Redirction Resolution [80x24]
Configures the number of rows and columns supported on legacy OS. Configuration options: [80x24] [80x25]

COM2
Console Redirection [Enabled]

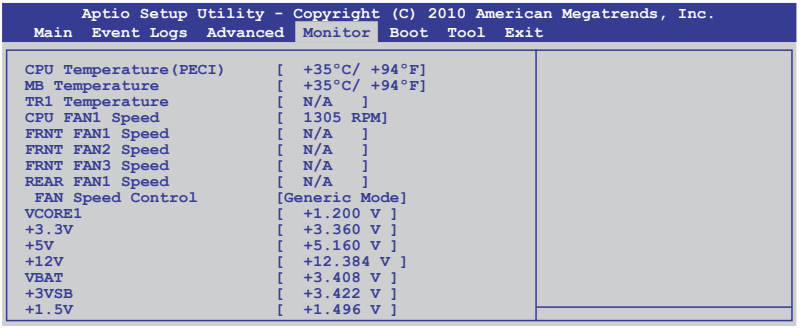
Enables or disables the console redirection feature.
Configuration options: [Disabled] [Enabled]

Console Redirection Settings

Please refer to the description of the **Console Redirection Settings** item under COM1 for details.

4.6 Monitor menu

The Monitor menu displays the system temperature/power status, and allows you to change the fan settings.


Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Main Event Logs Advanced Monitor Boot Tool Exit
CPU Temperature(PECI) [+35°C/ +94°F]
MB Temperature [+35°C/ +94°F]
TR1 Temperature [N/A]
CPU FAN1 Speed [1305 RPM]
FRNT FAN1 Speed [N/A]
FRNT FAN2 Speed [N/A]
FRNT FAN3 Speed [N/A]
REAR FAN1 Speed [N/A]
FAN Speed Control [Generic Mode]
VCORE1 [+1.200 V]
+3.3V [+3.360 V]
+5V [+5.160 V]
+12V [+12.384 V]
VBAT [+3.408 V]
+3VSB [+3.422 V]
+1.5V [+1.496 V]

CPU/MB/TR1 Temperature [xxxºC/xxxºF]

The onboard hardware monitor automatically detects and displays the CPU and motherboard component temperatures. Select **Ignore** if you do not wish to display the detected temperatures.

CPU FAN1 Speed; FRNT FAN1–3 Speed; REAR FAN1 Speed [xxxx RPM] or [Ignore] / [N/A]

The onboard hardware monitor automatically detects and displays the speed of CPU fans, front fans, and rear fan in rotations per minute (RPM). If the fan is not connected to the motherboard, the field shows **N/A**.

Fan Speed Control [Generic Mode]

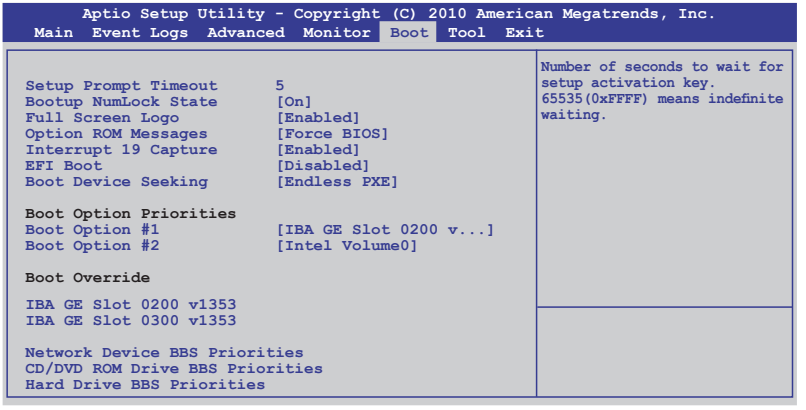
Allows you to configure the ASUS Smart Fan feature that smartly adjusts the fan speeds for more efficient system operation.
Configuration options: [Full Speed Mode] [High Density Mode] [Generic Mode] [Whisper Mode]

VCORE1 Voltage, 3.3V Voltage, +5V Voltage, +12V Voltage, VBAT Voltage, +3VSB Voltage, +1.5V ICHVoltage

The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators. Select **Ignore** if you do not want to detect this item.

4.7 Boot menu

The Boot menu items allow you to change the system boot options.


Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Main Event Logs Advanced Monitor Boot Tool Exit
Setup Prompt Timeout 5
Bootup NumLock State [On]
Full Screen Logo [Enabled]
Option ROM Messages [Force BIOS]
Interrupt 19 Capture [Enabled]
EFI Boot [Disabled]
Boot Device Seeking [Endless PXE]
Boot Option Priorities
Boot Option #1 [IBA GE Slot 0200 v...]
Boot Option #2 [Intel Volume0]
Boot Override
IBA GE Slot 0200 v1353
IBA GE Slot 0300 v1353
Network Device BBS Priorities
CD/DVD ROM Drive BBS Priorities
Hard Drive BBS Priorities
Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.

Setup Prompt Timeout [xx]

Use the <+> and <-> keys to adjust the number of seconds to wait for setup activation key.

Bootup NumLock State [On]

Allows you to select the power-on state for the NumLock.
Configuration options: [Off] [On]

Full Screen Logo [Enabled]

Allows you to enable or disable the full screen logo display feature.
Configuration options: [Disabled] [Enabled]

Set this item to [Enabled] to use the ASUS MyLogo2™ feature.

Option ROM Messages [Force BIOS]

Allows you to set the display mode for Options ROM.
Configuration options: [Force BIOS] [Keep Current]

Interrupt 19 Capture [Enabled]

Allows Option ROMs to trap interrupt 19.
Configuration options: [Disabled] [Enabled]

EFI Boot [Disabled]

Enables or disables EFI Boot.
Configuration options: [Disabled] [Enabled]

Boot Device Seeking [Endless PXE]

[Endless PXE] Continuous seek remote boot image until boot image found or user abort (press Ctrl+Alt+Del).

[Normal] Seek remote boot image once then stop.

Boot Option Priorities

These items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.

- To select the boot device during system startup, press <F8> when ASUS Logo appears.
- To access Windows OS in Safe Mode, do any of the following:
  - Press <F5> when ASUS Logo appears.
  - Press <F8> after POST.

Boot Override

These items displays the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system. Click an item to start booting from the selected device.

Network Device BBS Priorities

Set the booting order of network devices.

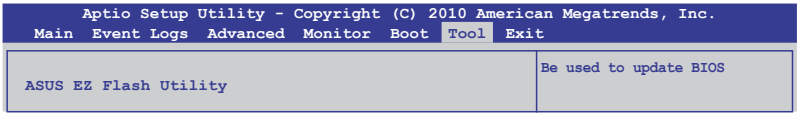
Boot Option #1/#2 [IBA GE Slot 0200 v1324]
Configuration options: [IBA GE Slot 0200 v1353] [IBA GE Slot 0300 v1353] [Disabled]

CD/DVD ROM Drives BBS Priorities
Hard Drive BBS Priorities

These two items appear only when you connect SATA ODD or hard drive to the SATA ports and allow you to set the booting order of the SATA devices.

4.8 Tool menu

The Tool menu items allow you to configure options for special functions. Select an item then press <Enter> to display the submenu.

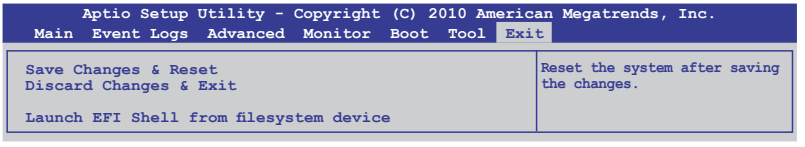

Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Main Event Logs Advanced Monitor Boot Tool Exit
ASUS EZ Flash Utility
Be used to update BIOS

ASUS EZ Flash Utility

Allows you to run ASUS EZ Flash BIOS ROM Utility when you press <Enter>. Check section **4.1.2 ASUS EZ Flash Utility** for details.

4.9 Exit menu

The Exit menu items allow you to save or discard your changes to the BIOS items.


Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
Main Event Logs Advanced Monitor Boot Tool Exit
Save Changes & Reset
Discard Changes & Exit
Launch EFI Shell from filesystem device
Reset the system after saving the changes.

Pressing <Esc> does not immediately exit this menu. Select one of the options from this menu or <F10> from the legend bar to exit.

Save Changes & Reset

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved. When you select this option or if you press <F10>, a confirmation window appears. Select **Yes** to save changes and exit.

Discard Changes & Exit

This option allows you to exit the Setup program without saving your changes. When you select this option or if you press <Esc>, a confirmation window appears. Select **Yes** to discard changes and exit.

Launch EFI Shell from filesystem device

This option allows you to attempt to launch the EFI Shell application (shellx64.efi) from one of the available filesystem devices.

This chapter provides instructions for setting up, creating, and configuring RAID sets using the available utilities.

5 RAID configuration

Chapter summary

5

5.1 Setting up RAID 5-3

5.2 LSI Software RAID Configuration Utility 5-5

5.3 Intel® Rapid Storage Technology Option ROM Utility 5-25

5.1 Setting up RAID

The motherboard comes with the Intel® C204 controller that supports the following SATA RAID solutions:

- **LSI MegaRAID software RAID Configuration Utility** (default) with RAID 0, RAID 1, and RAID 10 support (for both Linux and Windows OS).
- **Intel Rapid Storage Technology** with RAID 0, RAID 1, RAID 10, and RAID 5 support (for Windows OS only).

5.1.1 RAID definitions

RAID 0 *(Data striping)* optimizes two identical hard disk drives to read and write data in parallel, interleaved stacks. Two hard disks perform the same work as a single drive but at a sustained data transfer rate, double that of a single disk alone, thus improving data access and storage. Use of two new identical hard disk drives is required for this setup.

RAID 1 *(Data mirroring)* copies and maintains an identical image of data from one drive to a second drive. If one drive fails, the disk array management software directs all applications to the surviving drive as it contains a complete copy of the data in the other drive. This RAID configuration provides data protection and increases fault tolerance to the entire system. Use two new drives or use an existing drive and a new drive for this setup. The new drive must be of the same size or larger than the existing drive.

RAID 10 is data striping and data mirroring combined without parity (redundancy data) having to be calculated and written. With the RAID 10 configuration you get all the benefits of both RAID 0 and RAID 1 configurations. Use four new hard disk drives or use an existing drive and three new drives for this setup.

RAID 5 stripes both data and parity information across three or more hard disk drives. Among the advantages of RAID 5 configuration include better HDD performance, fault tolerance, and higher storage capacity. The RAID 5 configuration is best suited for transaction processing, relational database applications, enterprise resource planning, and other business systems. Use a minimum of three identical hard disk drives for this setup.

- If you want to boot the system from a hard disk drive included in a created RAID set, copy first the RAID driver from the support DVD to a floppy disk before you install an operating system to the selected hard disk drive.
- Please refer to chapter 2 for how to select the RAID configuration utility. Move the jumper to choose between LSI MegaRAID and Intel® Rapid RAID.

5.1.2 Installing hard disk drives

The motherboard supports Serial ATA for RAID set configuration. For optimal performance, install identical drives of the same model and capacity when creating a disk array.

To install the SATA hard disks for RAID configuration:

1. Install the SATA hard disks into the drive bays following the instructions in the system user guide.
2. Connect a SATA signal cable to the signal connector at the back of each drive and to the SATA connector on the motherboard.
3. Connect a SATA power cable to the power connector on each drive.

5.1.3 Setting the RAID item in BIOS

You must set the RAID item in the BIOS Setup before you can create a RAID set from SATA hard disk drives attached to the SATA connectors supported by Intel® C204 chipset. To do this:

1. Enter the BIOS Setup during POST.
2. Go to the **Advanced** Menu > **SATA Configuration**, then press <Enter>.
3. Set **SATA Mode** to [RAID Mode]
4. Press <F10> to save your changes and exit the BIOS Setup.

Refer to Chapter 4 for details on entering and navigating through the BIOS Setup.

5.1.4 RAID configuration utilities

Depending on the RAID connectors that you use, you can create a RAID set using the utilities embedded in each RAID controller. For example, use the **LSI Logic Embedded SATA RAID Setup Utility** or the **Intel® Rapid Storage Technology** if you installed Serial ATA hard disk drives on the Serial ATA connectors supported by the Intel® C204 chipset.

Refer to the succeeding section for details on how to use the RAID configuration utility.

5.2 LSI Software RAID Configuration Utility

The LSI MegaRAID software RAID configuration utility allows you to create RAID 0, RAID 1, or RAID 10 set(s) from SATA hard disk drives connected to the SATA connectors supported by the motherboard southbridge chip.

To enter the LSI MegaRAID software RAID configuration utility:

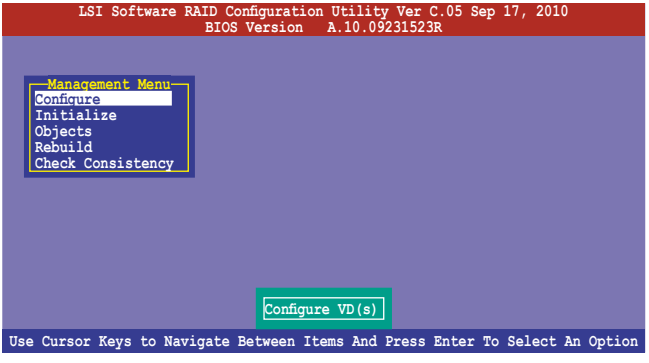
1. Turn on the system after installing all the SATA hard disk drives.
2. During POST, the LSI MegaRAID software RAID configuration utility automatically detects the installed SATA hard disk drives and displays any existing RAID set(s). Press <Ctrl> + <M> to enter the utility.

```
LSI MegaRAID Software RAID BIOS Version A.10 09231523R
LSI SATA RAID Found at PCI Bus No:00 Dev No:1F
Device present at Port 0     ST3160812AS      152114MB
Device present at Port 1     ST3160812AS      152114MB
Device present at Port 2     ST3160812AS      152114MB
Device present at Port 3     ST3160812AS      152114MB
Press Ctrl-M or Enter to run LSI Software RAID Setup Utility.
```

- The LSI MegaRAID software RAID configuration utility automatically configures to RAID 1 when the SATA to RAID Mode is enabled.
- The RAID setup screens shown in this section are for reference only and may not exactly match the items on your screen due to the controller version difference.
- When you create RAID sets with the LSI MegaRAID software RAID configuration utility, the boot priority of the SATA optical drive has to be manually adjusted. Otherwise, the system will not boot from the connected SATA ODD.

3. The utility main window appears. Use the arrow keys to select an option from the **Management Menu** and then press <Enter>. Refer to the Management Menu descriptions on the next page.

   At the bottom of the screen is the legend box. The keys on the legend box allow you to navigate through the setup menu options or execute commands. The keys on the legend box vary according to the menu level.



Menu	Description
Configure	Allows you to create RAID 0, RAID 1 or RAID 10 set using the Easy Configuration or the New Configuration command. This menu also allows you to view, add, or clear RAID configurations or select the boot drive
Initialize	Allows you to initialize the virtual drives of a created RAID set
Objects	Allows you to initialize virtual drives or change the virtual drive parameters
Rebuild	Allows you to rebuild failed drives
Check Consistency	Allows you to check the data consistency of the virtual drives of a created RAID set

5.2.1 Creating a RAID set

The LSI Software RAID Configuration Utility allows you to create a RAID 0, RAID 1, or RAID 10 set using two types of configurations: **Easy** and **New**.

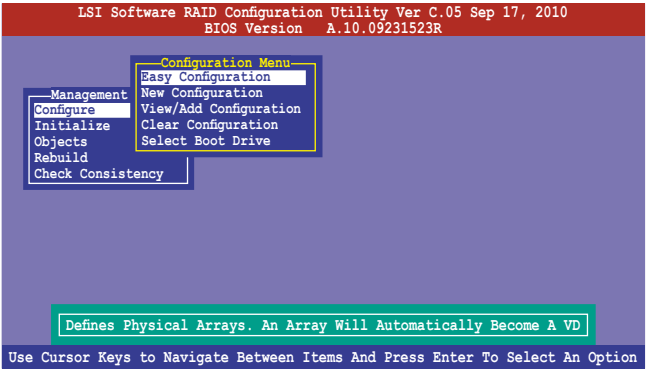
In **Easy Configuration**, the virtual drive parameters are set automatically.

In **New Configuration**, you manually set the virtual drive parameters.

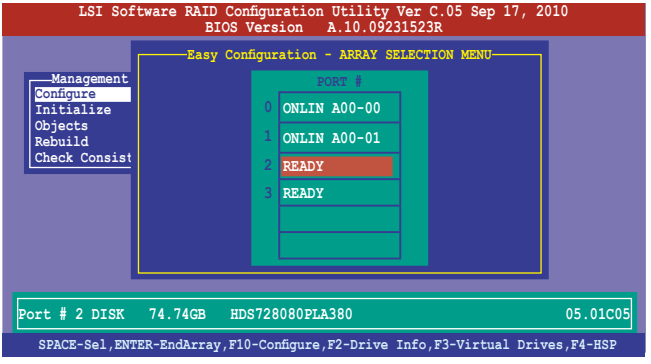
Using Easy Configuration

To create a RAID set using the **Easy Configuration** option:

1. From the **Management Menu**, select **Configure > Easy Configuration**, and then press <Enter>.

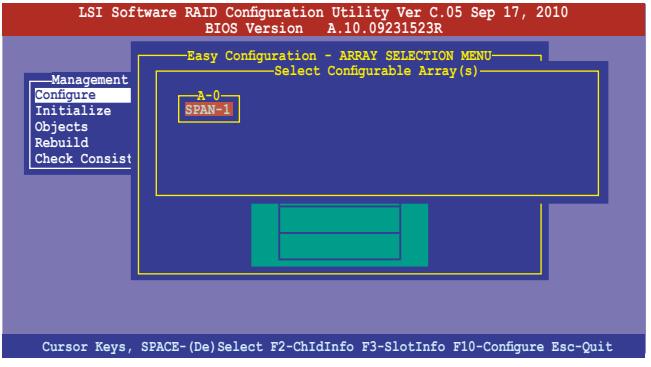


2. The **ARRAY SELECTION MENU** displays the available drives connected to the SATA ports. Use the up/down arrow keys to select the drives you want to include in the RAID set, and then press <Space>. When selected, the drive indicator changes from **READY** to **ONLIN A[X]-[Y]**, where X is the array number, and Y is the drive number.

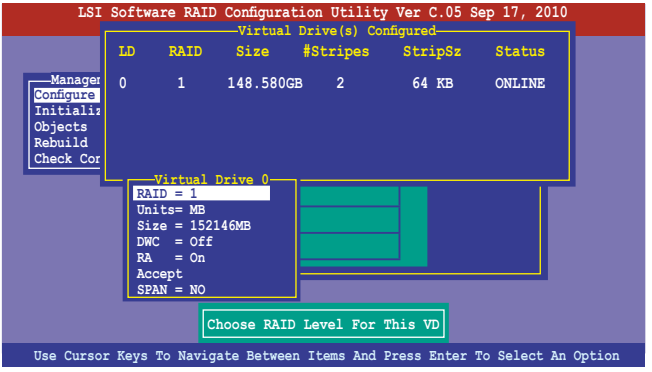


- The information of the selected hard disk drive displays at the bottom of the screen.
- You need at least two identical hard disk drives when creating a RAID 1 set.
- You need at least four identical hard disk drives when creating a RAID 10 set.

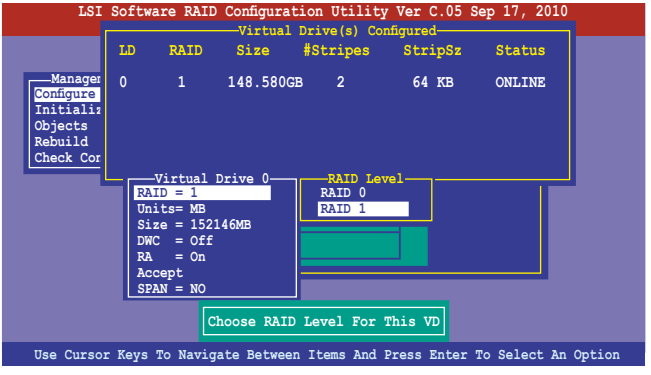
3. Select all the drives required for the RAID set, and then press <F10> to configure array setting.
4. Press <Space> to select the configurable array.



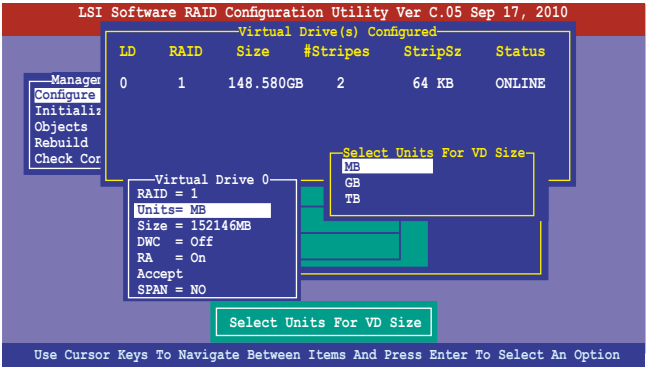
5. Press <F10> again, the virtual drive information appears including a **Virtual Drive** menu that allows you to change the virtual drive parameters.



6. Select **RAID** from the **Virtual Drive** sub-menu, and then press <Enter>.
7. Select the **RAID** level from the menu, and then press <Enter>.

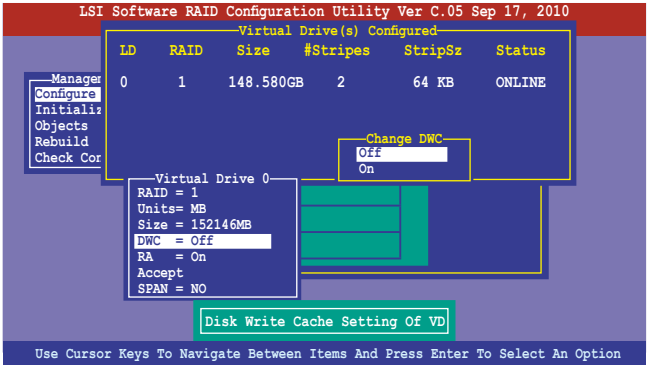


8. Select **Units** from the **Virtual Drive** sub-menu, and then press <Enter>.
9. Select the units for virtual drive size from the menu, and then press <Enter>.



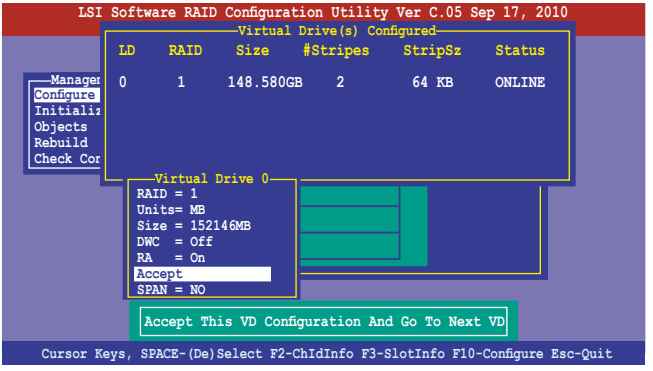
10. When creating a **RAID 1** or a **RAID 10** set, select **DWC** from the **Virtual Drive** menu, and then press <Enter>.

    When creating a **RAID 0** set, proceed to step 12.
11. Select **On** to enable the **Disk Write Cache** setting, and then press <Enter>.

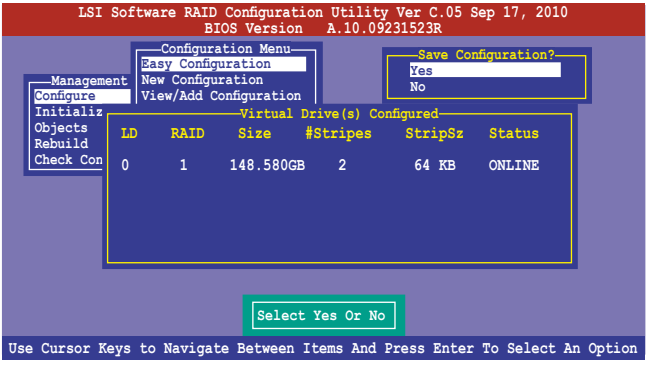


Enabling DWC can improve the performance, but with the risk of data loss.

12. When finished setting the selected virtual drive configuration, select **Accept** from the menu, and then press <Enter>.



13. Follow step 2 to 12 to configure additional virtual drives.
14. Press <Esc> to finish RAID configuration. When prompted to save configuration, select **Yes** from the menu, and then press <Enter>.

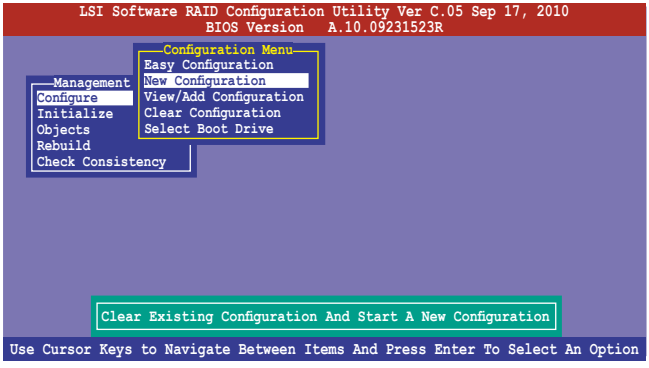


Using New Configuration

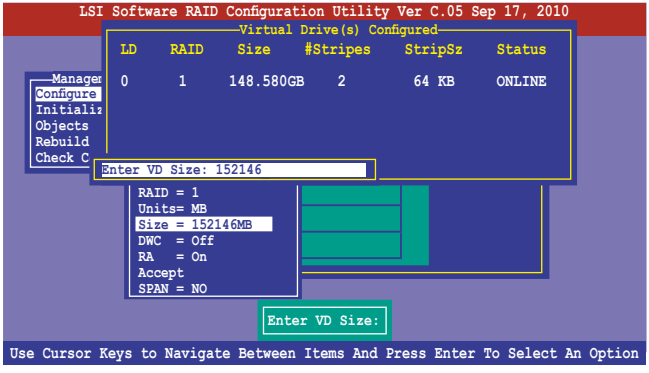
When a RAID set already exists, using the **New Configuration** command erases the existing RAID configuration data. If you do not want to delete the existing RAID set, use the **View/Add Configuration** command to view or create another RAID configuration.

To create a RAID set using the **New Configuration** option

1. From the **Management Menu**, select **Configure > New Configuration,** and then press <Enter>.



2. Follow step 2 to 9 of the previous section: **Using Easy Configuration**.
3. Select **Size** from the **Virtual Drive** menu, and then press <Enter>.
4. Key-in the desired virtual drive size, and then press <Enter>.


LSI Software RAID Configuration Utility Ver C.05 Sep 17, 2010
Virtual Drive(s) Configured
LD RAID Size #Stripes StripSz Status
0 1 148.580GB 2 64 KB ONLINE
Enter VD Size: 152146
RAID = 1
Units= MB
Size = 152146MB
DWC = Off
RA = On
Accept
SPAN = NO
Enter VD Size:
Use Cursor Keys to Navigate Between Items And Press Enter To Select An Option

5. Follow step 10 to 14 of the previous section: **Using Easy Configuration** to create the RAID set.

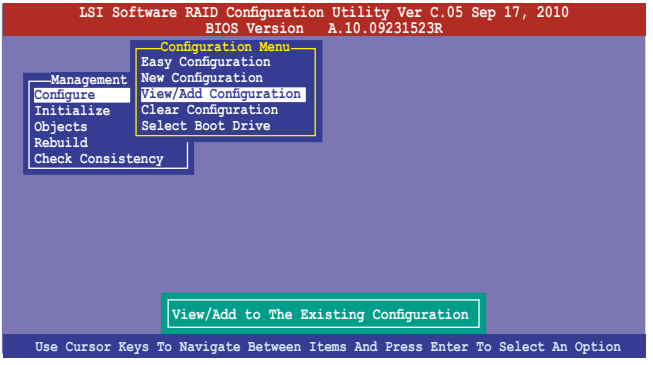
5.2.2 Adding or viewing a RAID configuration

You can add a new RAID configuration or view an existing configuration using the **View/Add Configuration** command.

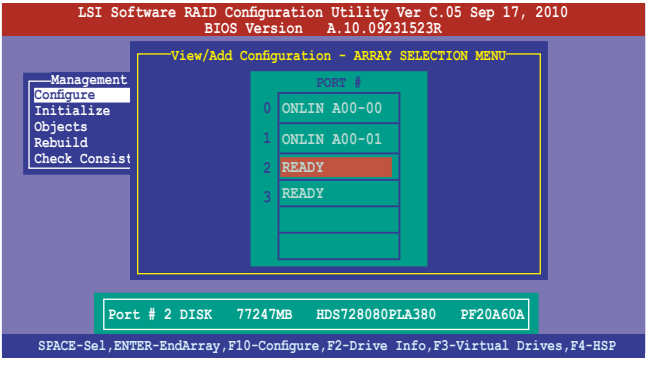
Adding a new RAID configuration

To add a new RAID configuration:

1. From the **Management Menu**, select **Configure > View/Add Configuration**, and then press <Enter>.



2. The **ARRAY SELECTION MENU** displays the available drives connected to the SATA ports. Select the drive(s) you want to include in the RAID set, then press <Space>. When selected, the drive indicator changes from **READY** to **ONLIN A[X]-[Y]**, where X is the array number, and Y is the drive number.



The information of the selected hard disk drive displays at the bottom of the screen.

3. Follow step 3 to 12 of section **5.2.1 Creating a RAID set: Using Easy Configuration** to add a new RAID set.

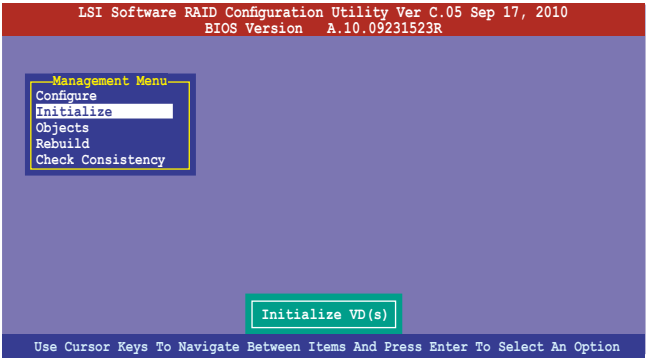
5.2.3 Initializing the virtual drives

After creating the RAID set(s), you must initialize the virtual drives. You may initialize the virtual drives of a RAID set(s) using the **Initialize** or **Objects** command on the **Management Menu**.

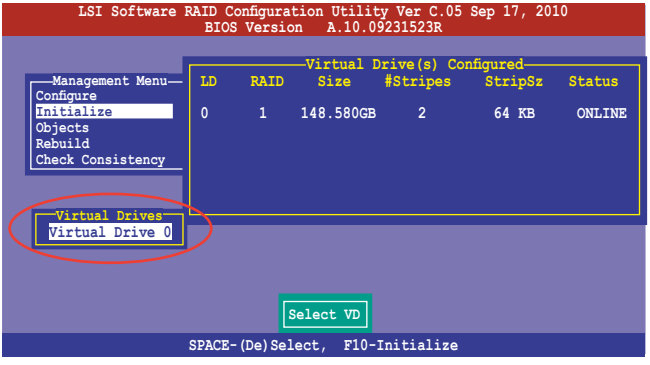
Using the Initialize command

To initialize the virtual drive using the Initialize command

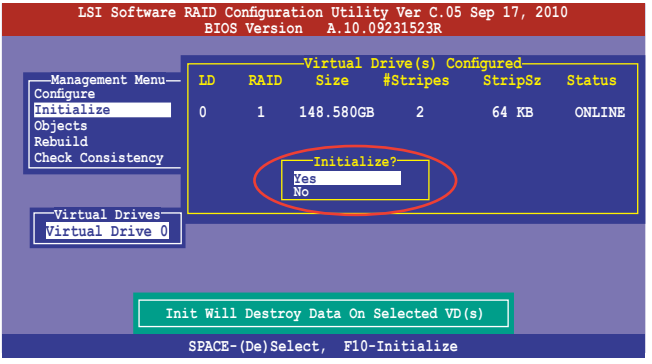
1. From the **Management Menu**, select **Initialize**, and then press <Enter>.



2. The screen displays the available RAID set(s) and prompts you to select the virtual drive to initialize. Use the arrow keys to select the virtual drive from the **Virtual Drive** selection, and then press <Space>.

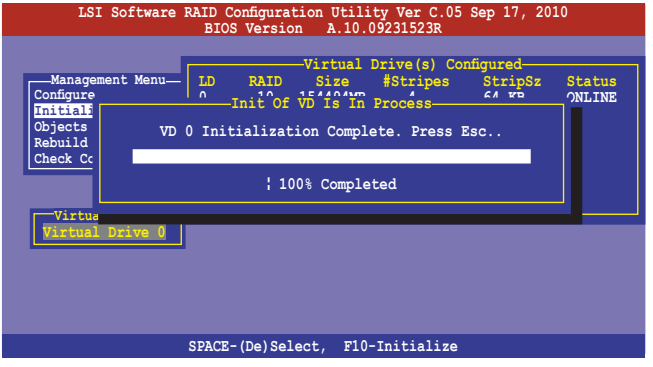


3. Press <F10> to start initialization. When prompted, select **Yes** from the **Initialize?** dialog box, and then press <Enter>.



Initializing a virtual drive erases all data on the drive.

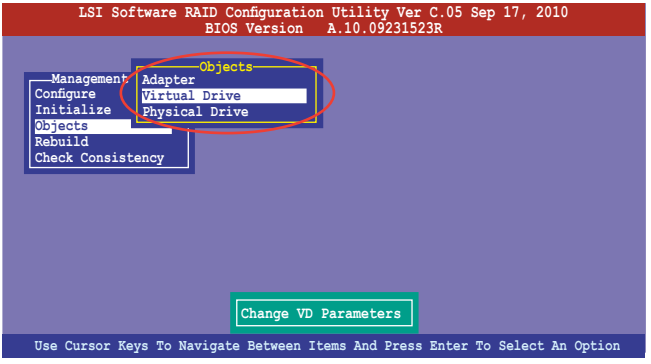
4. A progress bar appears on screen. If desired, press <Esc> to abort initialization. When initialization is completed, press <Esc>.


LSI Software RAID Configuration Utility Ver C.05 Sep 17, 2010
BIOS Version A.10.09231523R
Management Menu
Virtual Drive(s) Configured
LD RAID Size #Stripes StripSz Status
ONLINE
Init Of VD Is In Process
VD 0 Initialization Complete. Press Esc..
100% Completed
Virtual Drive 0
SPACE-(De)Select, F10-Initialize

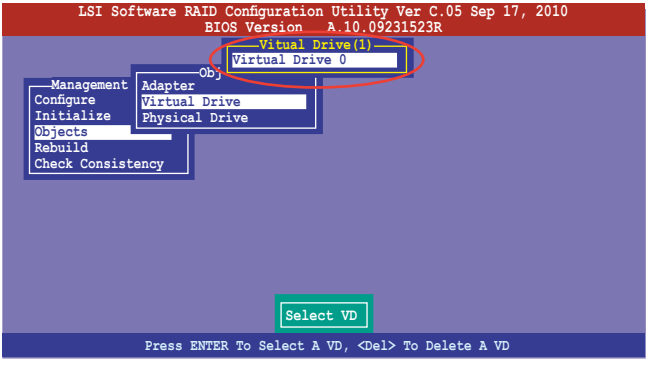
Using the Objects command

To initialize the virtual drives using the **Objects** command

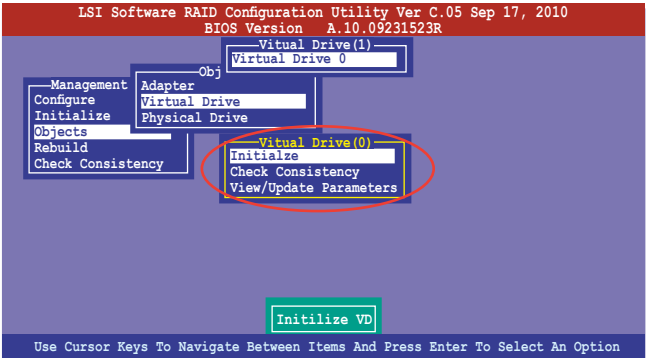
1. From the **Management Menu**, select **Objects > Virtual Drive**, and then press <Enter>.



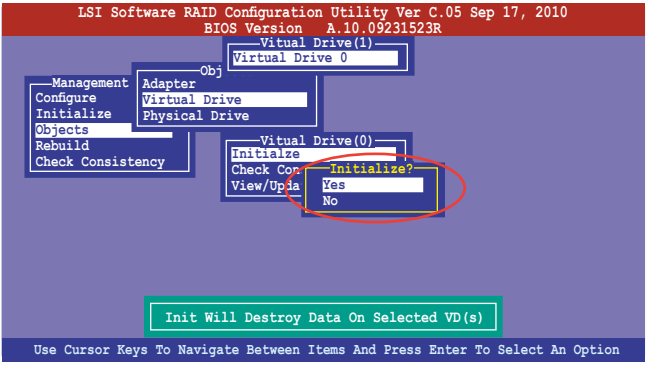
2. Select the virtual drive to initialize from the **Virtual Drives** sub-menu, and then press <Enter>.



3. Select **Initialize** from the pop-up menu, and then press <Enter> to start initialization.



4. When prompted, press the <Space> to select **Yes** from the **Initialize?** dialog box, and then press <Enter>.



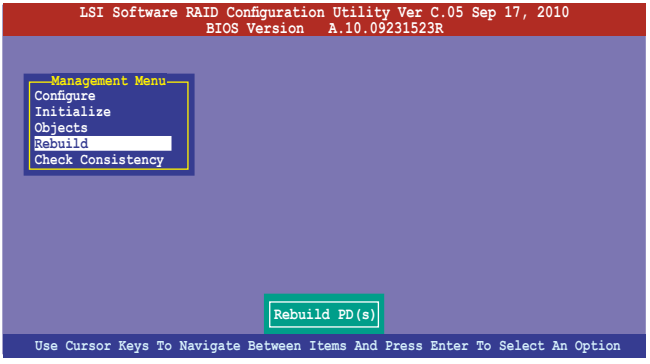
5. A progress bar appears on screen. If desired, press <Esc> to abort initialization. When initialization is completed, press <Esc>.

5.2.4 Rebuilding failed drives

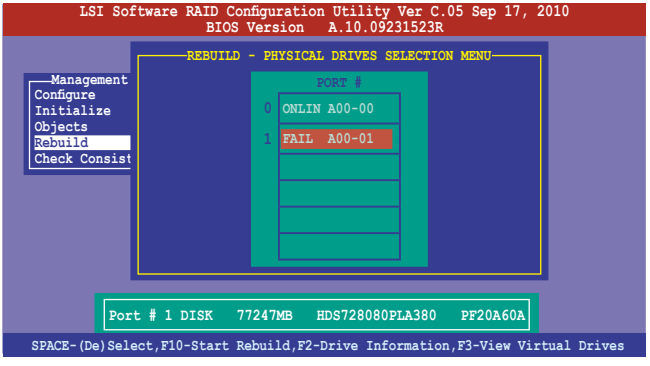
You can manually rebuild failed hard disk drives using the **Rebuild** command in the **Management Menu**.

To rebuild a failed hard disk drive

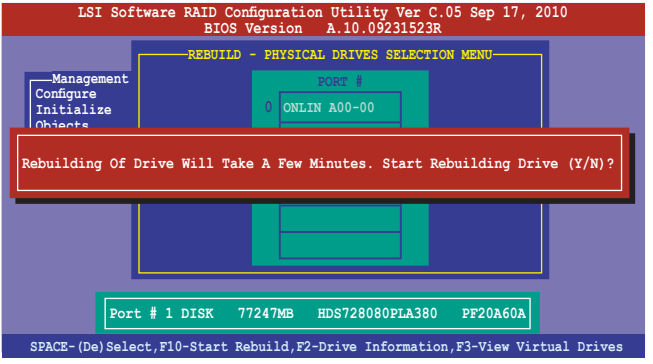
1. From the **Management Menu**, select **Rebuild**, and then press <Enter>.



2. The **PHYSICAL DRIVES SELECTION MENU** displays the available drives connected to the SATA ports. Select the drive you want to rebuild, and then press <Space>.



3. After selecting the drive to rebuild, press <F10>. When prompted, press <Y> to rebuild the drive.


LSI Software RAID Configuration Utility Ver C.05 Sep 17, 2010
BIOS Version A.10.09231523R
REBUILD - PHYSICAL DRIVES SELECTION MENU
Management
Configure
Initialize
PORT #
0 ONLIN A00-00
Rebuilding Of Drive Will Take A Few Minutes. Start Rebuilding Drive (Y/N)?
Port # 1 DISK 77247MB HDS728080PLA380 PF20A60A
SPACE-(De)Select,F10-Start Rebuild,F2-Drive Information,F3-View Virtual Drives

4. When rebuild is complete, press any key to continue.

5.2.5 Checking the drives for data consistency

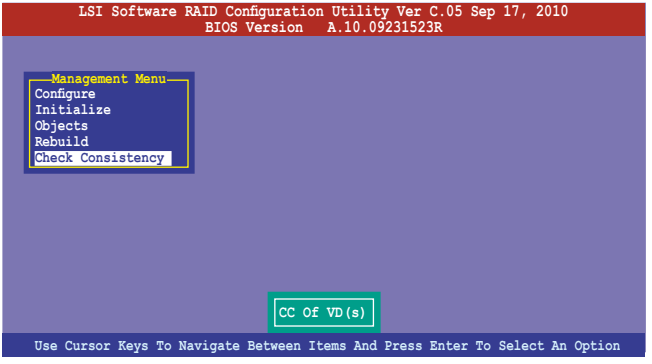
You can check and verify the accuracy of data redundancy in the selected virtual drive. The utility can automatically detect and/or detect and correct any differences in data redundancy depending on the selected option in the **Objects > Adapter** menu.

The **Check Consistency** command is available only for virtual drives included in a RAID 1 or RAID 10 set.

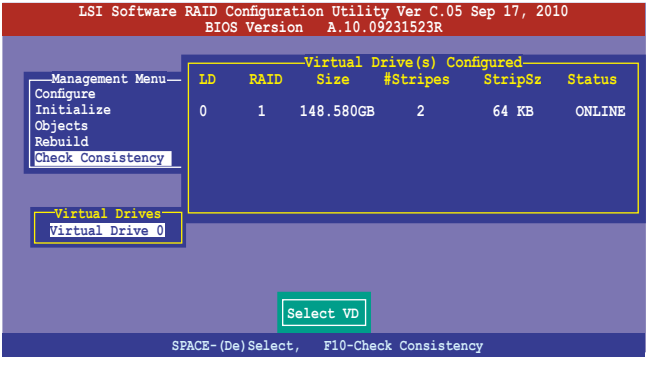
Using the Check Consistency Command

To check data consistency using the **Check Consistency** command

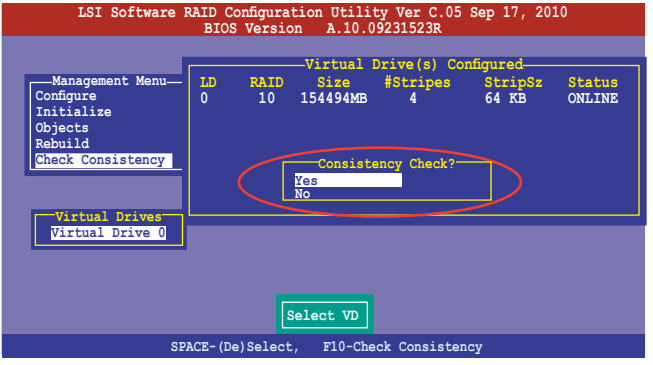
1. From the **Management Menu**, select **Check Consistency**, and then press <Enter>.



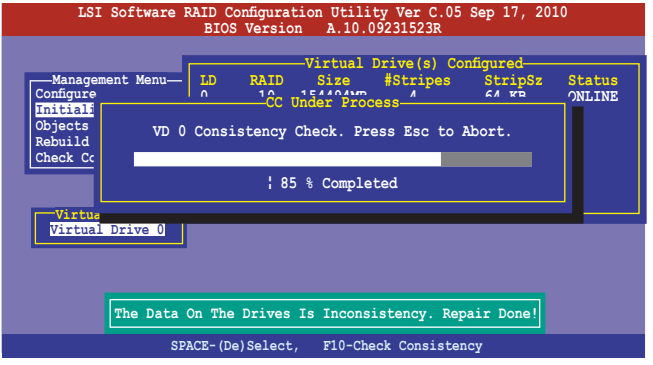
2. The screen displays the available RAID set(s) and prompts you to select the virtual drive to check. Press <Space> to select the virtual drive from the **Virtual Drive** sub-menu, and then press <F10>.



3. When prompted, use the arrow keys to select **Yes** from the **Consistency Check?** dialog box, and then press <Enter>.



A progress bar appears on screen.


LSI Software RAID Configuration Utility Ver C.05 Sep 17, 2010
BIOS Version A.10.09231523R
Management Menu
Virtual Drive(s) Configured
LD RAID Size #Stripes StripSz Status
CC Under Process
VD 0 Consistency Check. Press Esc to Abort.
85 % Completed
Virtual Drive 0
The Data On The Drives Is Inconsistency. Repair Done!
SPACE-(De)Select, F10-Check Consistency

4. While checking the disk consistency, press <Esc> to display the following options.
   - **Stop** - Stops the consistency check. The utility stores the percentage of disk checked, and when you restart checking, it continues from the last percentage completed rather than from zero percent.
   - **Continue** - Continues the consistency check.
   - **Abort** - Aborts the consistency check. When you restart checking, it continues from zero percent.

5. When checking is complete, press any key to continue.

Using the Objects command

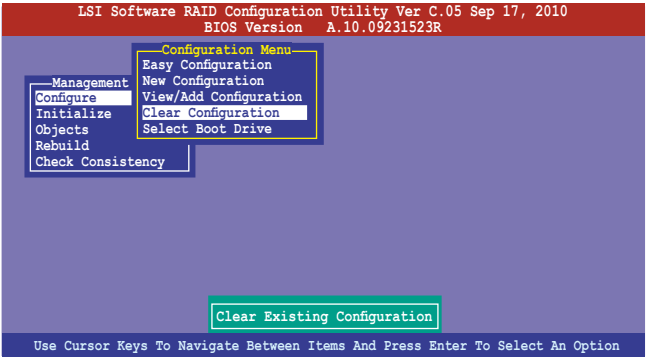
To check data consistency using the **Objects** command

1. From the **Management Menu**, select **Objects**, and then select **Virtual Drive** from the sub-menu.
2. Use the arrow keys to select the virtual drive you want to check, and then press <Enter>.
3. Select **Check Consistency** from the pop-up menu, and then press <Enter>.
4. When prompted, use the arrow keys to select **Yes** from the dialog box to check the drive.
5. When checking is complete, press any key to continue.

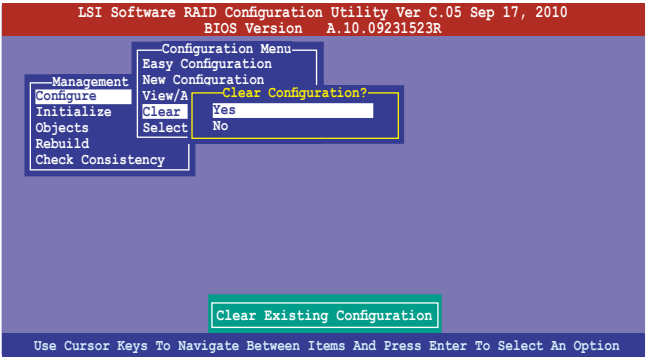
5.2.6 Deleting a RAID configuration

To delete a RAID configuration

1. From the **Management Menu**, select **Configure** > **Clear Configuration**, and then press <Enter>.



2. When prompted, use the arrow keys to select **Yes** from the **Clear Configuration?** dialog box, and then press <Enter>.



The utility clears all the current array(s).

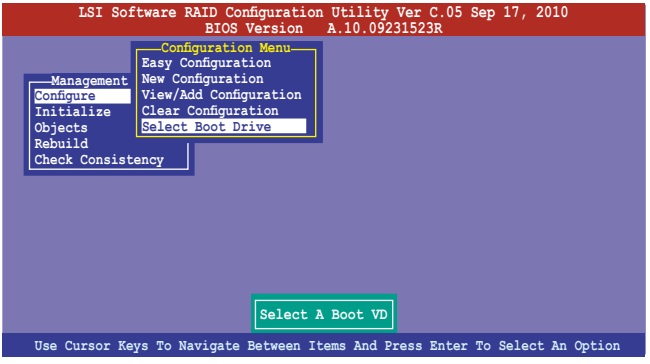
3. Press any key to continue.

5.2.7 Selecting the boot drive from a RAID set

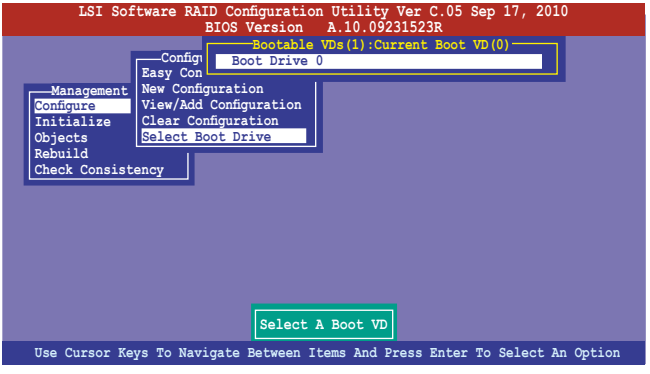
You must have created a new RAID configuration before you can select the boot drive from a RAID set. See section **5.2.1 Creating a RAID set: Using New Configuration** for details.

To select the boot drive from a RAID set

1. From the **Management Menu**, select **Configure** > **Select Boot Drive**, and then press <Enter>.



2. When prompted, use the arrow keys to select the bootable virtual drive from the list, then press <Enter>.



3. The virtual drive is selected as boot drive. Press any key to continue.

5.2.8 Enabling WriteCache

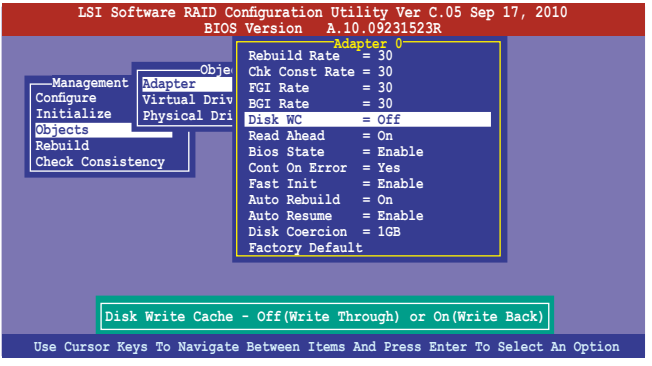
You may manually enable the RAID controller's WriteCache option after creating a RAID set to improve the data transmission performance.

When you enable WriteCache, you may lose data when a power interruption occurs while transmitting or exchanging data among the drives.

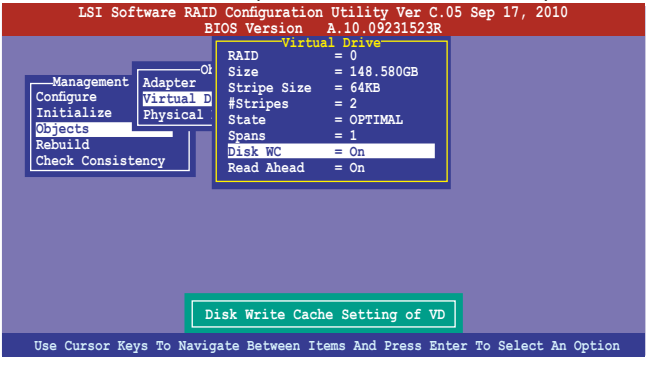
The WriteCache function is recommended for RAID 1 and RAID 10 sets.

To enable WriteCache

1. From the **Management Menu**, select **Objects** > **Adapter**, select an existing adapter, and then press <Enter> to display the adapter properties.
2. Select **Disk WC**, and then press <Enter> to turn on the option.



3. From the **Management Menu**, select **Objects** > **Virtual Drive**, select an existing adapter and press <Enter>. Select **View/Update Parameters** and press <Enter> to display the adapter properties.
4. Select **Disk WC**, and then press <Enter> to turn on the option.



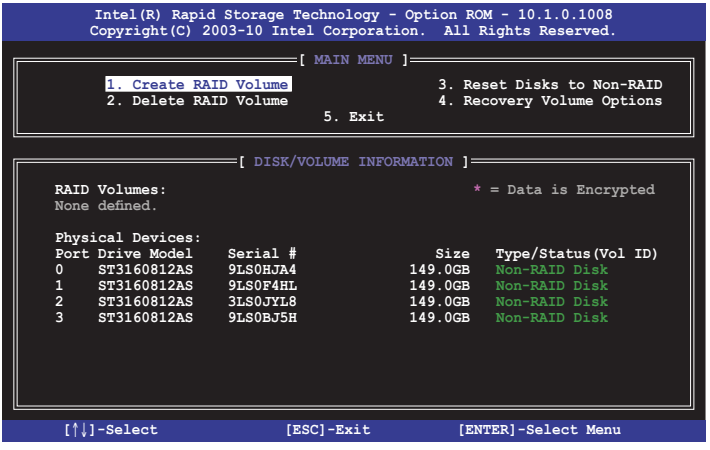
5. When finished, press any key to continue.

5.3 Intel® Rapid Storage Technology Option ROM Utility

The Intel® Rapid Storage Technology Option ROM utility allows you to create RAID 0, RAID 1, RAID 10 (RAID 1+0), and RAID 5 set(s) from Serial ATA hard disk drives that are connected to the Serial ATA connectors supported by the Southbridge.

To enter the Intel® Rapid Storage Technology option ROM utility:

1. Install all the Serial ATA hard disk drives.
2. Turn on the system.
3. During POST, press <Ctrl+I> to display the utility main menu.


Intel(R) Rapid Storage Technology - Option ROM - 10.1.0.1008
Copyright(C) 2003-10 Intel Corporation. All Rights Reserved.
[MAIN MENU]
1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Recovery Volume Options
5. Exit
[DISK/VOLUME INFORMATION]
RAID Volumes:
None defined.
* = Data is Encrypted
Physical Devices:
Port Drive Model Serial # Size Type/Status(Vol ID)
0 ST3160812AS 9LS0HJA4 149.0GB Non-RAID Disk
1 ST3160812AS 9LS0F4HL 149.0GB Non-RAID Disk
2 ST3160812AS 3LS0JYL8 149.0GB Non-RAID Disk
3 ST3160812AS 9LS0BJ5H 149.0GB Non-RAID Disk
[↑↓]-Select
[ESC]-Exit
[ENTER]-Select Menu

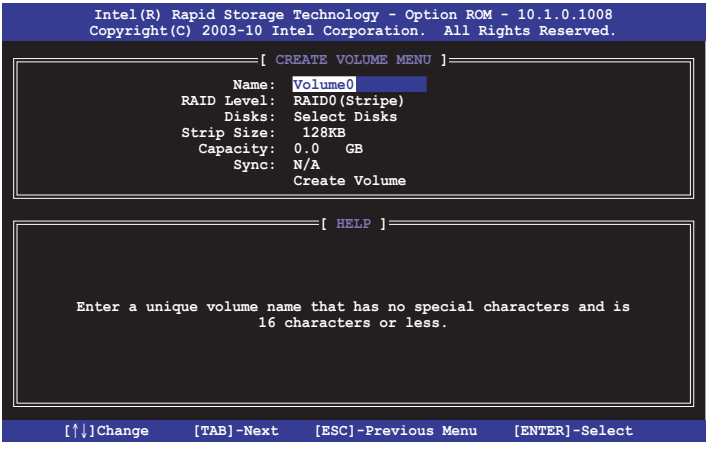
The navigation keys at the bottom of the screen allow you to move through the menus and select the menu options.

The RAID BIOS setup screens shown in this section are for reference only and may not exactly match the items on your screen.

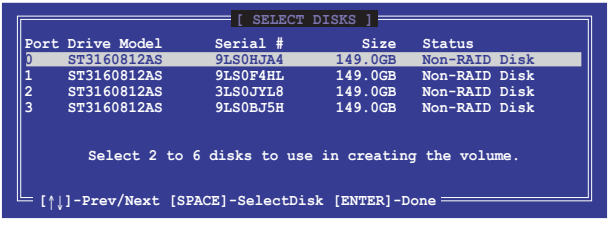
5.3.1 Creating a RAID set

To create a RAID set:

1. From the utility main menu, select **1. Create RAID Volume** and press <Enter>. The following screen appears.


Intel(R) Rapid Storage Technology - Option ROM - 10.1.0.1008
Copyright(C) 2003-10 Intel Corporation. All Rights Reserved.
[CREATE VOLUME MENU]
Name: Volume0
RAID Level: RAID0(Stripe)
Disks: Select Disks
Strip Size: 128KB
Capacity: 0.0 GB
Sync: N/A
Create Volume
[HELP]
Enter a unique volume name that has no special characters and is 16 characters or less.
[↑↓]Change [TAB]-Next [ESC]-Previous Menu [ENTER]-Select

2. Enter a name for the RAID set and press <Enter>.
3. When the **RAID Level** item is selected, press the up/down arrow keys to select a RAID level to create, and then press <Enter>.
4. When the **Disks** item is selected, press <Enter> to select the hard disk drives you want to include in the RAID set. The **SELECT DISKS** screen appears.

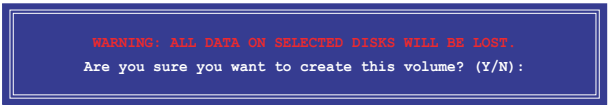

[SELECT DISKS]
Port Drive Model Serial # Size Status
0 ST3160812AS 9LS0HJA4 149.0GB Non-RAID Disk
1 ST3160812AS 9LS0F4HL 149.0GB Non-RAID Disk
2 ST3160812AS 3LS0JYL8 149.0GB Non-RAID Disk
3 ST3160812AS 9LS0BJ5H 149.0GB Non-RAID Disk
Select 2 to 6 disks to use in creating the volume.
[↑↓]-Prev/Next [SPACE]-SelectDisk [ENTER]-Done

5. Use the up/down arrow keys to select a drive, and then press <Space> to select. A small triangle marks the selected drive. Press <Enter> after completing your selection.

6. Use the up/down arrow keys to select the stripe size for the RAID array (for RAID 0, 10 and 5 only), and then press <Enter>. The available stripe size values range from 4 KB to 128 KB. The following are typical values:
   RAID 0: 128KB
   RAID 10: 64KB
   RAID 5: 64KB

We recommend a lower stripe size for server systems, and a higher stripe size for multimedia computer systems used mainly for audio and video editing.

7. When the **Capacity** item is selected, enter the RAID volume capacity that you want and press <Enter>. The default value indicates the maximum allowed capacity.
8. When the **Create Volume** item is selected, press <Enter>. The following warning message appears.

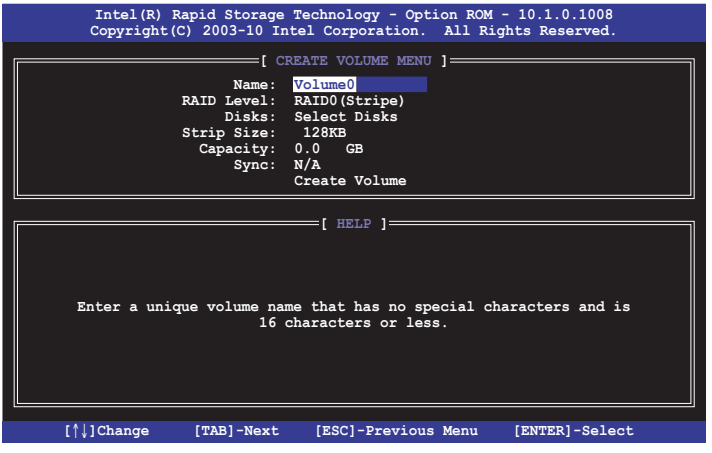


9. Press <Y> to create the RAID volume and return to the main menu, or <N> to go back to the **CREATE VOLUME** menu.

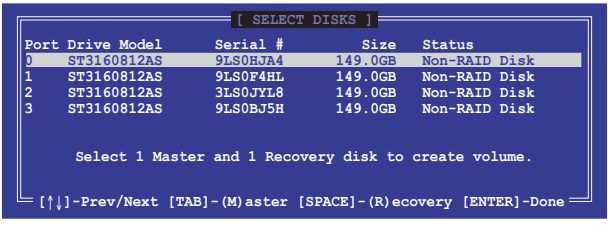
5.3.2 Creating a Recovery set

To create a recovery set:

1. From the utility main menu, select **1. Create RAID Volume** and press <Enter>. The following screen appears.


Intel(R) Rapid Storage Technology - Option ROM - 10.1.0.1008
Copyright(C) 2003-10 Intel Corporation. All Rights Reserved.
[CREATE VOLUME MENU]
Name: Volume0
RAID Level: RAID0(Stripe)
Disks: Select Disks
Strip Size: 128KB
Capacity: 0.0 GB
Sync: N/A
Create Volume
[HELP]
Enter a unique volume name that has no special characters and is 16 characters or less.
[↑↓]Change [TAB]-Next [ESC]-Previous Menu [ENTER]-Select

2. Enter a name for the recovery set and press <Enter>.
3. When the **RAID Level** item is selected, press the up/down arrow keys to select **Recovery**, and then press <Enter>.
4. When the **Disks** item is selected, press <Enter> to select the hard disk drives you want to include in the recovery set. The **SELECT DISKS** screen appears.


[SELECT DISKS]
Port Drive Model Serial # Size Status
0 ST3160812AS 9LS0HJA4 149.0GB Non-RAID Disk
1 ST3160812AS 9LS0F4HL 149.0GB Non-RAID Disk
2 ST3160812AS 3LS0JYL8 149.0GB Non-RAID Disk
3 ST3160812AS 9LS0BJ5H 149.0GB Non-RAID Disk
Select 1 Master and 1 Recovery disk to create volume.
[↑↓]-Prev/Next [TAB]-(M)aster [SPACE]-(R)ecovery [ENTER]-Done

5. Use the up/down arrow keys to select a drive, press <TAB> to select a Master disk, and then press <SPACE> to select a Recovery disk. A small triangle marks the selected drive. Press <Enter> after completing your selection.
6. When the **Sync** item is selected, use the up/down arrow keys to select a sync option that you want and press <Enter>.
7. When the **Create Volume** item is selected, press <Enter>. The following warning message appears.

8. Press <Y> to create the recovery set and return to the main menu, or <N> to go back to the **CREATE VOLUME** menu.

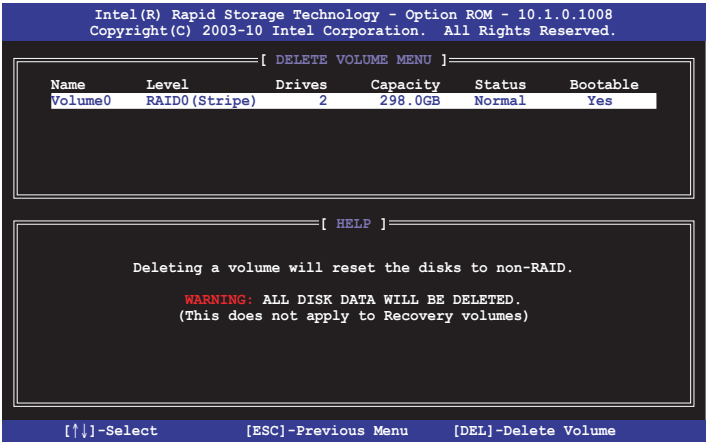
If a recovery set is created, you cannot add more RAID sets even when you have more non-RAID disks installed in your system.

5.3.3 Deleting a RAID set

Take caution when deleting a RAID set. You will lose all data on the hard disk drives when you delete a RAID set.

To delete a RAID set:

1. From the utility main menu, select **2. Delete RAID Volume** and press <Enter>. The following screen appears.


Intel(R) Rapid Storage Technology - Option ROM - 10.1.0.1008
Copyright(C) 2003-10 Intel Corporation. All Rights Reserved.
[DELETE VOLUME MENU]
Name Level Drives Capacity Status Bootable
Volume0 RAID0(Stripe) 2 298.0GB Normal Yes
[HELP]
Deleting a volume will reset the disks to non-RAID.
WARNING: ALL DISK DATA WILL BE DELETED.
(This does not apply to Recovery volumes)
[↑↓]-Select [ESC]-Previous Menu [DEL]-Delete Volume

2. Use the up/down arrow keys to select the RAID set you want to delete, and then press <Del>. The following warning message appears.

[DELETE VOLUME VERIFICATION]
ALL DATA IN THE VOLUME WILL BE LOST!
(This does not apply to Recovery volumes)
Are you sure you want to delete volume "Volume0"? (Y/N):

3. Press <Y> to delete the RAID set and return to the utility main menu, or press <N> to return to the **DELETE VOLUME** menu.

5.3.4 Resetting disks to Non-RAID

Take caution before you reset a RAID volume hard disk drive to non-RAID. Resetting a RAID volume hard disk drive deletes all internal RAID structure on the drive.

To reset a RAID set hard disk drive:

1. From the utility main menu, select **3. Reset Disks to Non-RAID** and press <Enter>. The following screen appears.

[RESET RAID DATA]
Resetting RAID disk will remove its RAID structures
and revert it to a non-RAID disk.
WARNING: Resetting a disk causes all data on the disk to be lost.
(This does not apply to Recovery volumes)
Port Drive Model Serial # Size Status
0 ST3160812AS 9LS0HJA4 149.0GB Member Disk
1 ST3160812AS 9LS0F4HL 149.0GB Member Disk
Select the disks that should be reset.
[↑↓]-Previous/Next [SPACE]-Selects [ENTER]-Selection Complete

2. Use the up/down arrow keys to select the RAID set drive(s) you want to reset, and then press <Space> to select.
3. Press <Enter> to reset the RAID set drive(s). A confirmation message appears.
4. Press <Y> to reset the drive(s) or press <N> to return to the utility main menu.

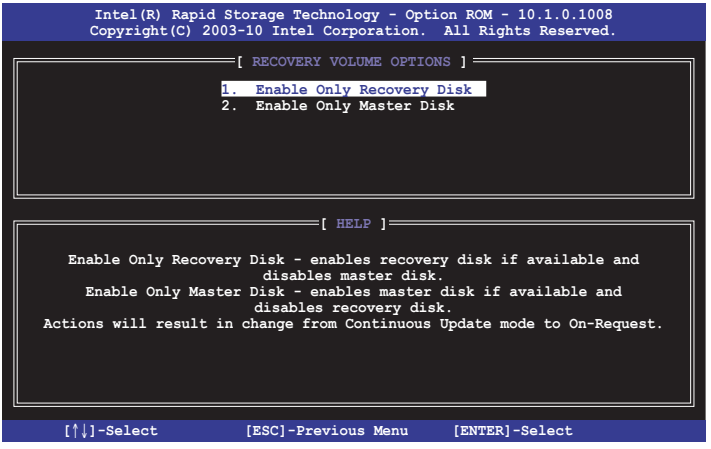
5.3.5 Recovery Volume Options

If you have created a recovery set, you can configure more recovery set options following the descriptions in the section.

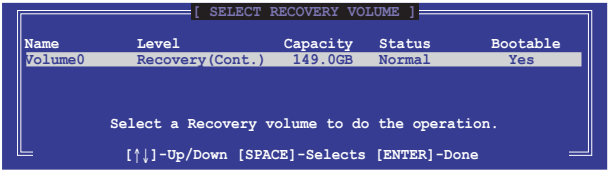
See section **5.3.2 Creating a Recovery set** to create a recovery set before continue.

To configure a recovery set:

1. From the utility main menu, select **4. Recovery Volume Options** and press <Enter>. The following screen appears.


Intel(R) Rapid Storage Technology - Option ROM - 10.1.0.1008
Copyright(C) 2003-10 Intel Corporation. All Rights Reserved.
[RECOVERY VOLUME OPTIONS]
1. Enable Only Recovery Disk
2. Enable Only Master Disk
[HELP]
Enable Only Recovery Disk - enables recovery disk if available and disables master disk.
Enable Only Master Disk - enables master disk if available and disables recovery disk.
Actions will result in change from Continuous Update mode to On-Request.
[↑↓]-Select
[ESC]-Previous Menu
[ENTER]-Select

2. Use the up/down arrow keys to select the option you want, and then press <ENTER>. The **SELECT RECOVERY VOLUME** screen appears.


[SELECT RECOVERY VOLUME]
Name Level Capacity Status Bootable
Volume0 Recovery(Cont.) 149.0GB Normal Yes
Select a Recovery volume to do the operation.
[↑↓]-Up/Down [SPACE]-Selects [ENTER]-Done

3. Use the up/down arrow keys to select a drive, and then press <Space> to select. A small triangle marks the selected drive. Press <Enter> after completing your selection and return to the utility main menu.

5.3.6 Exiting the Intel® Rapid Storage Technology utility

To exit the utility:

1. From the utility main menu, select **5. Exit**, and then press <Enter>. The following warning message appears.

2. Press <Y> to exit or press <N> to return to the utility main menu.

5.3.7 Rebuilding the RAID

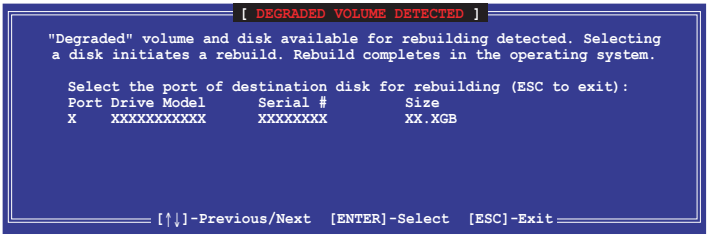
This option is only for the RAID 1 set.

Rebuilding the RAID with other non-RAID disk

If any of the SATA hard disk drives included in the RAID 1 array failed, the system displays the status of the RAID volume as "**Degraded**" during POST. You can rebuild the RAID array with other installed non-RAID disks.

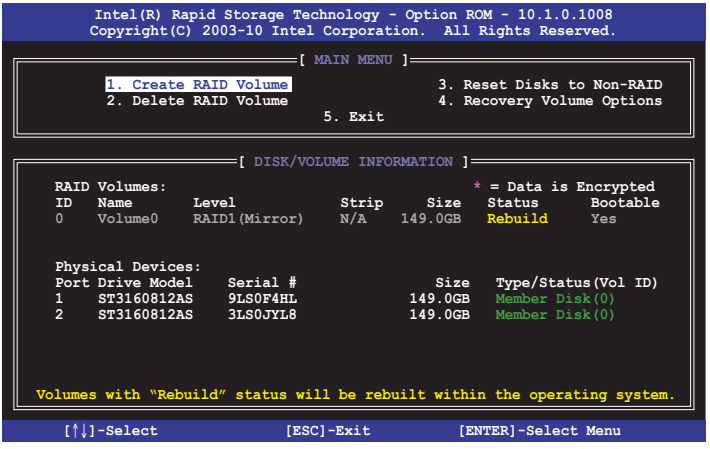
To rebuild the RAID with other non-RAID disk:

1. At the prompt, press <Ctrl> + <I> to enter the Intel Rapid Storage Technology option ROM utility.
2. If there is a non-RAID SATA Hard Disk available, the utility will prompt to rebuild the RAID. Press <Enter>, and then use up/down arrow keys to select the destination disk or press <ESC> to exit.


[DEGRADED VOLUME DETECTED]
"Degraded" volume and disk available for rebuilding detected. Selecting a disk initiates a rebuild. Rebuild completes in the operating system.
Select the port of destination disk for rebuilding (ESC to exit):
Port Drive Model Serial # Size
X XXXXXXXXXXX XXXXXXXX XX.XGB
[↑↓]-Previous/Next [ENTER]-Select [ESC]-Exit

Select a destination disk with the same size as the original hard disk.

3. The utility immediately starts rebuilding after the disk is selected. The status of the degraded RAID volume is changed to **"Rebuild"**.


Intel(R) Rapid Storage Technology - Option ROM - 10.1.0.1008
Copyright(C) 2003-10 Intel Corporation. All Rights Reserved.
[MAIN MENU]
1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Recovery Volume Options
5. Exit
[DISK/VOLUME INFORMATION]
RAID Volumes:
* = Data is Encrypted
ID Name Level Strip Size Status Bootable
0 Volume0 RAID1(Mirror) N/A 149.0GB Rebuild Yes
Physical Devices:
Port Drive Model Serial # Size Type/Status(Vol ID)
1 ST3160812AS 9LS0F4HL 149.0GB Member Disk(0)
2 ST3160812AS 3LS0JYL8 149.0GB Member Disk(0)
Volumes with "Rebuild" status will be rebuilt within the operating system.
[↑↓]-Select
[ESC]-Exit
[ENTER]-Select Menu

4. Exit Intel Rapid Storage Technology and reboot the system.
5. Under Microsoft® Windows OS, select **Start > Programs > Intel Rapid Storage > Intel Rapid Storage Console** or click the **Intel Rapid Storage Technology** tray icon to load the Intel Rapid Storage Manager utility.
6. From the **View** menu, select **Advanced Mode** to display the details of the Intel Rapid Storage Console.
7. From the **Volumes view** option, select **RAID volume** to view the rebuilding status. When finished, the status is changed to "**Normal**".

Rebuilding the RAID with a new hard disk

If any of the SATA hard disk drives included in the RAID array failed, the system displays the status of the RAID volume as "**Degraded**" during POST. You may replace the disk drive and rebuild the RAID array.

To rebuild the RAID with a new hard disk:

1. Remove the failed SATA hard disk and install a new SATA hard disk of the same specification into the same SATA Port.

Select a destination disk with the same size as the original hard disk.

2. Reboot the system and then follow the steps in section **Rebuilding the RAID with other non-RAID disk**.

5.3.8 Setting the Boot array in the BIOS Setup Utility

You can set the boot priority sequence in the BIOS for your RAID arrays when creating multi-RAID using the Intel® Rapid Storage Technology.

To set the boot array in the BIOS:

Set at least one of the arrays bootable to boot from the hard disk.

1. Reboot the system and press <Del> to enter the BIOS setup utility during POST.
2. Go to the **Boot** menu and select the boot option priority.
3. Use up/down arrow keys to select the boot priority and press <Enter>. See section **4.7 Boot menu** for details.
4. From the **Exit** menu, select **Save Changes & Exit**, then press <Enter>.
5. When the confirmation window appears, select **Yes**, then press <Enter>.

This chapter provides the instructions for installing the necessary drivers for different system components.

6 Driver installation

Chapter summary

6

6.1 RAID driver installation 6-3
6.2 Intel chipset device software installation 6-15
6.3 LAN driver installation..... 6-17
6.4 VGA driver installation..... 6-20
6.5 Management application and utilities installation 6-23

6.1 RAID driver installation

After creating the RAID sets for your server system, you are now ready to install an operating system to the independent hard disk drive or bootable array. This part provides the instructions on how to install the RAID controller drivers during OS installation.

6.1.1 Creating a RAID driver disk

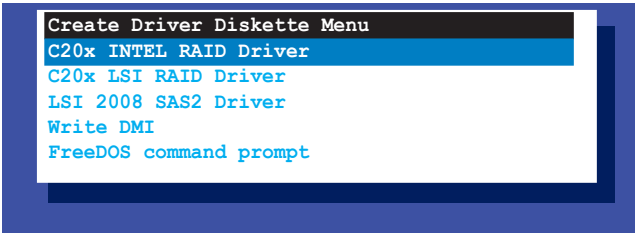
The system does not include a floppy drive. You have to use a USB floppy drive when creating a SATA RAID driver disk.

If you have created RAID sets with the LSI Software RAID configuration utility, the boot priority of the SATA optical disk drive has to be manually adjusted. Otherwise, the system will not boot from the connected SATA ODD.

A floppy disk with the RAID driver is required when installing Windows® XP / Server 2003 or Linux operating system on a hard disk drive that is included in a RAID set. You can create a RAID driver disk in DOS (using the Makedisk application in the support DVD).

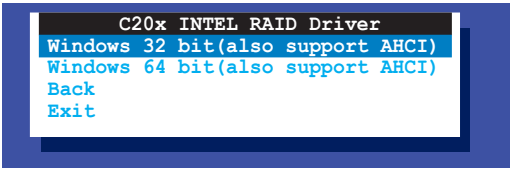
To create a RAID driver disk in DOS environment

1. Place the motherboard support DVD in the optical drive.
2. Restart the computer, and then enter the BIOS Setup.
3. Select the optical drive as the first boot priority to boot from the support DVD. Save your changes, and then exit the BIOS Setup.
4. Restart the computer. The Makedisk menu appears.

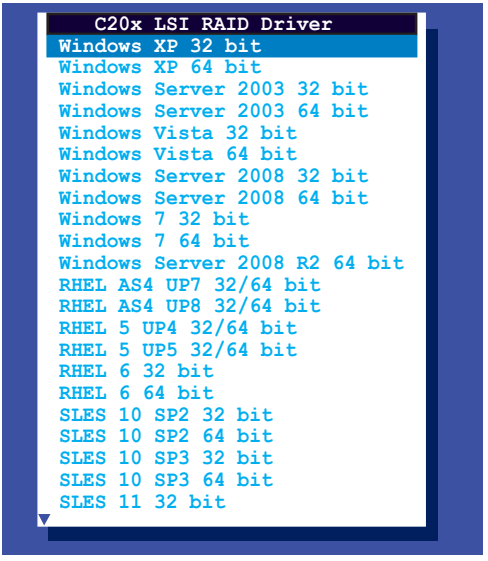


5. Use the arrow keys to select the type of RAID driver disk you want to create and press <Enter> to enter the sub-menu.

C20x INTEL RAID Driver



C20x LSI RAID Driver


C20x LSI RAID Driver
Windows XP 32 bit
Windows XP 64 bit
Windows Server 2003 32 bit
Windows Server 2003 64 bit
Windows Vista 32 bit
Windows Vista 64 bit
Windows Server 2008 32 bit
Windows Server 2008 64 bit
Windows 7 32 bit
Windows 7 64 bit
Windows Server 2008 R2 64 bit
RHEL AS4 UP7 32/64 bit
RHEL AS4 UP8 32/64 bit
RHEL 5 UP4 32/64 bit
RHEL 5 UP5 32/64 bit
RHEL 6 32 bit
RHEL 6 64 bit
SLES 10 SP2 32 bit
SLES 10 SP2 64 bit
SLES 10 SP3 32 bit
SLES 10 SP3 64 bit
SLES 11 32 bit

6. Locate the RAID driver and place a blank, high-density floppy disk to the floppy disk drive.
7. Press <Enter>.
8. Follow screen instructions to create the driver disk.

To create a RAID driver disk in Windows® environment

1. Start Windows®.
2. Place the motherboard support DVD into the optical drive.
3. Go to the **Make disk** menu, and then select the type of RAID driver disk you want to create.
4. Insert a floppy disk into the USB floppy disk drive.
5. Follow succeeding screen instructions to complete the process.

Write-protect the floppy disk to avoid computer virus infection.

To create a RAID driver disk in Red Hat® Enterprise Linux server environment

1. Insert a blank formatted high-density floppy disk to the USB floppy disk drive.
2. Type **`dd if=XXX.img of=/dev/fd0`** to decompress the file into the floppy disk from the following path in the support DVD:

   For LSI MegaRAID Driver

   \Drivers\C20x LSI RAID\Driver\makedisk\Linux

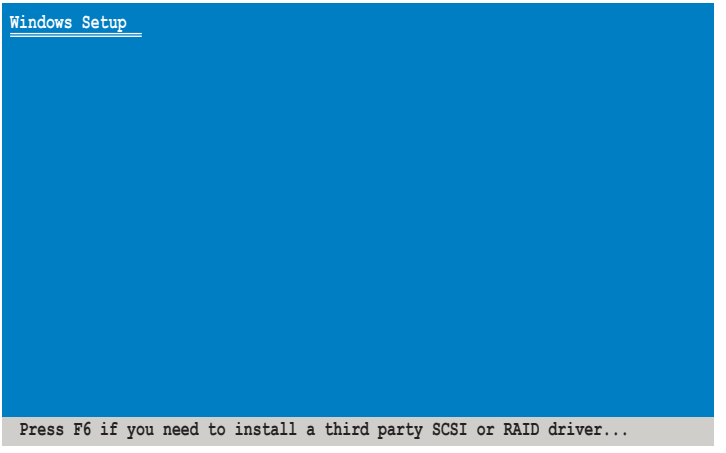
3. Eject the floppy disk.

6.1.2 Installing the RAID controller driver

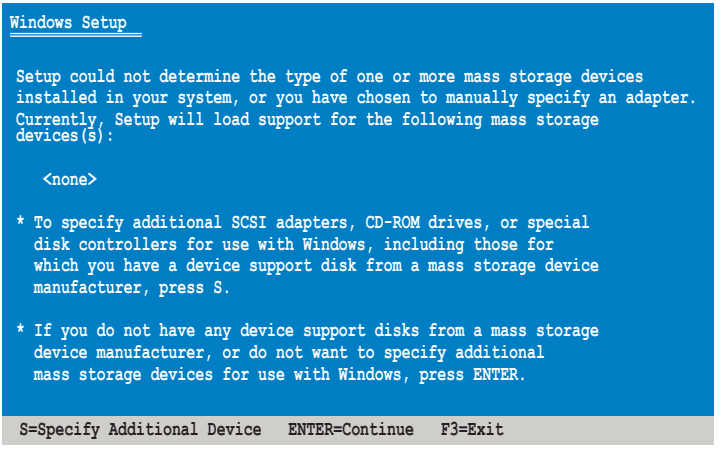
During Windows® Server 2003 / XP OS installation

To install the RAID controller driver when installing Windows® Server 2003 / XP OS

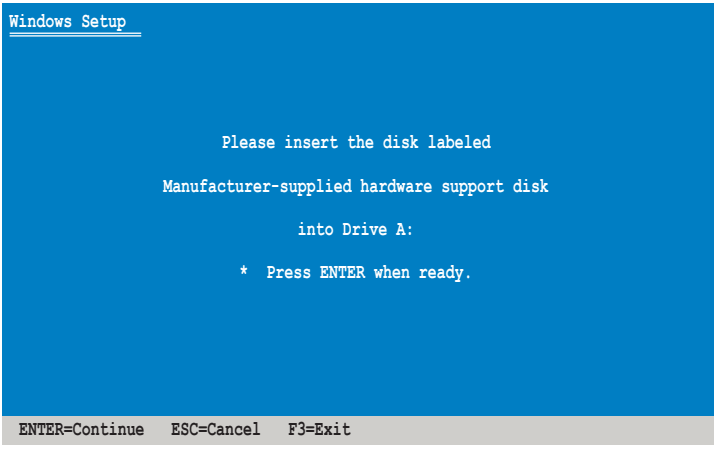
1. Boot the computer using the Windows® Server 2003 / XP installation disc. The Windows® Setup starts.
2. Press <F6> when the message “Press F6 if you need to install a third party SCSI or RAID driver...” appears at the bottom of the screen.



3. The next screen appears. Press <S> to specify an additional device.


Windows Setup
Setup could not determine the type of one or more mass storage devices installed in your system, or you have chosen to manually specify an adapter. Currently, Setup will load support for the following mass storage devices(s):
<none>
* To specify additional SCSI adapters, CD-ROM drives, or special disk controllers for use with Windows, including those for which you have a device support disk from a mass storage device manufacturer, press S.
* If you do not have any device support disks from a mass storage device manufacturer, or do not want to specify additional mass storage devices for use with Windows, press ENTER.
S=Specify Additional Device ENTER=Continue F3=Exit

4. Insert the RAID driver disk you created earlier to the floppy disk drive, then press <Enter>.

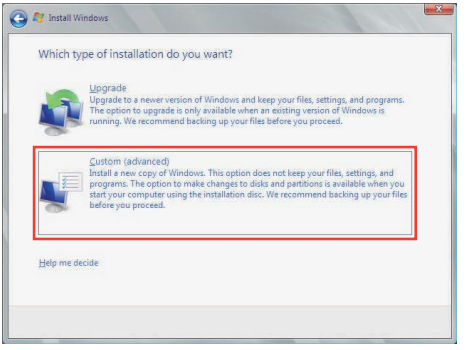


5. Select the RAID controller driver you need from the list, and then press <Enter>.
6. The Windows® Setup loads the RAID controller drivers from the RAID driver disk. When the next screen appears, press <Enter> to continue installation.
7. Setup then proceeds with the OS installation. Follow screen instructions to continue.

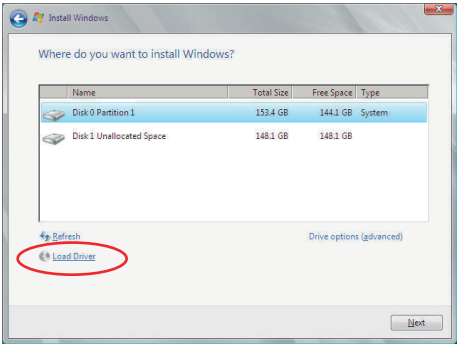
During Windows® Server 2008 OS installation

To install the RAID controller driver when installing Windows® Server 2008 OS

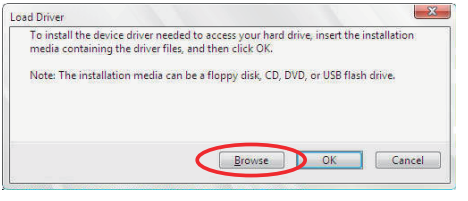
1. Boot the computer using the Windows® Server 2008 OS installation disc. Follow the screen instructions to start installing Windows Server 2008.
2. When prompted to choose a type of installation, click **Custom (advanced)**.


Install Windows
Which type of installation do you want?
Upgrade
Upgrade to a newer version of Windows and keep your files, settings, and programs. The option to upgrade is only available when an existing version of Windows is running. We recommend backing up your files before you proceed.
Custom (advanced)
Install a new copy of Windows. This option does not keep your files, settings, and programs. The option to make changes to disks and partitions is available when you start your computer using the installation disc. We recommend backing up your files before you proceed.
Help me decide

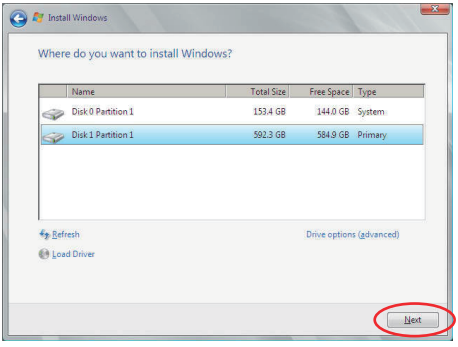
3. Click **Load Driver**.



4. A message appears, reminding you to insert the installation media containing the driver of the RAID controller driver. If you have only one optical drive installed in your system, eject the Windows OS installation disc and replace with the motherboard Support DVD into the optical drive. Click **Browse** to continue.


Load Driver
To install the device driver needed to access your hard drive, insert the installation media containing the driver files, and then click OK.
Note: The installation media can be a floppy disk, CD, DVD, or USB flash drive.
Browse
OK
Cancel

5. Locate the driver in the corresponding folder of the Support DVD, and then click **OK** to continue.
6. Select the RAID controller driver you need from the list and click **Next**.
7. When the system finishes loading the RAID driver, replace the motherboard Support DVD with the Windows Server installation disc. Select the drive to install Windows and click **Next**.



8. Setup then proceeds with the OS installation. Follow screen instructions to continue.

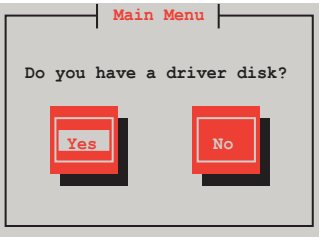
Red Hat® Enterprise Linux OS 5.0

To install the RAID controller driver when installing Red Hat® Enterprise OS:

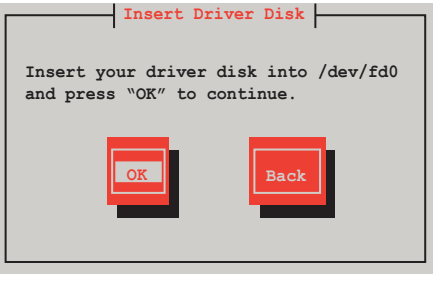
1. Boot the system from the Red Hat® OS installation CD.
2. At the **boot:**, type **linux dd**.
3. Press <Enter>.

```
-  To install or upgrade in graphical mode, press the <ENTER> key.
-  To install or upgrade in text mode, type: linux text <ENTER>.
-  Use the function keys listed below for more information.
[F1-Main] [F2-Options] [F3-General] [F4-Kernel] [F5-Rescue]
boot: linux dd
```

4. Select **Yes** using the <Tab> key when asked if you have the driver disk, then press <Enter>.

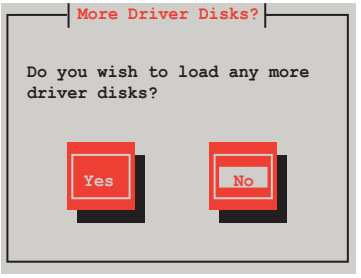


5. Insert the Red Hat® Enterprise RAID driver disk to the USB floppy disk drive, select **OK**, then press <Enter>.



The drivers for the RAID card are installed to the system.

6. When asked if you will load additional RAID controller drivers, select **No**, then press <Enter>.

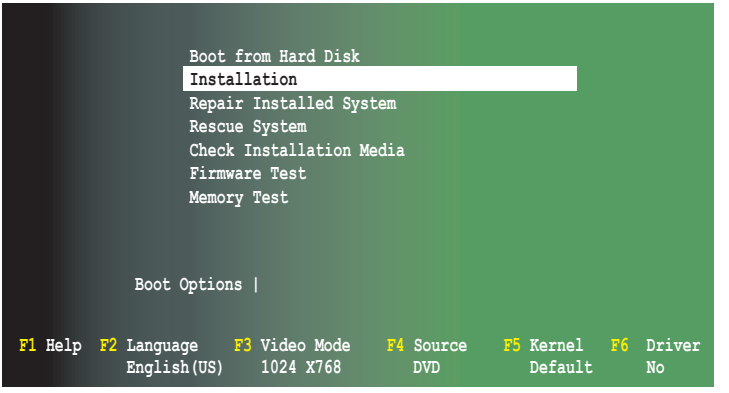


7. Follow the onscreen instructions to finish the OS installation.

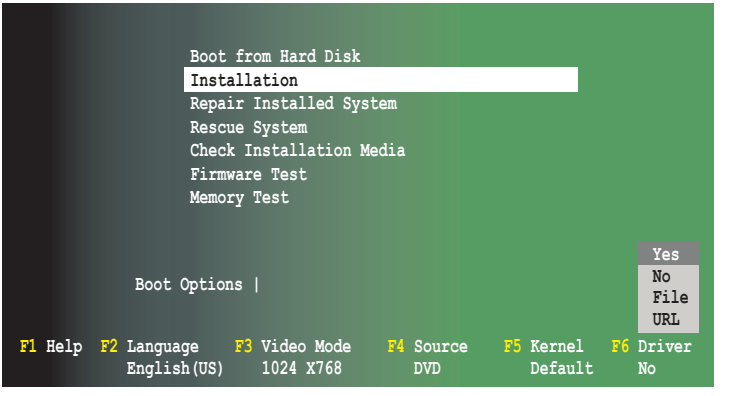
SUSE Linux 11 OS

To install the RAID controller driver when installing SUSE Linux Enterprise Server OS:

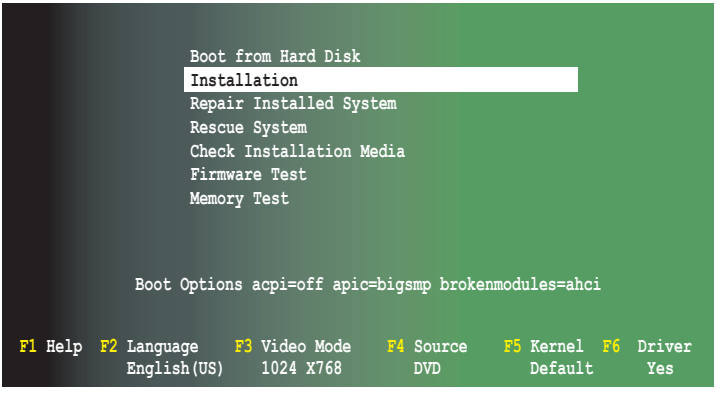
1. Boot the system from the SUSE OS installation CD.
2. Use the arrow keys to select **Installation** from the **Boot Options** menu.


Boot from Hard Disk
Installation
Repair Installed System
Rescue System
Check Installation Media
Firmware Test
Memory Test
Boot Options |
F1 Help F2 Language English(US) F3 Video Mode 1024 X768 F4 Source DVD F5 Kernel Default F6 Driver No

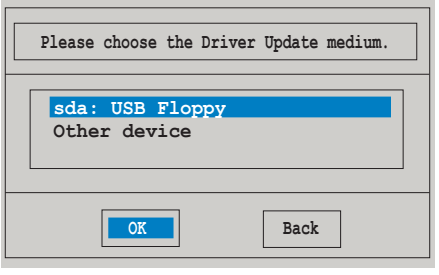
3. Press <F6>, then select **Yes** from the menu. Press <Enter>.



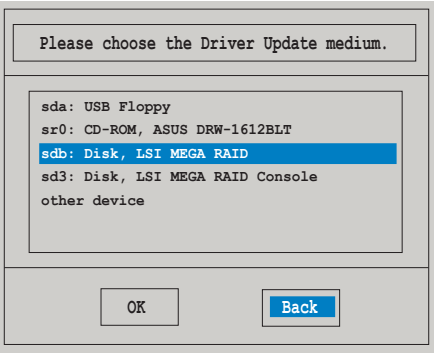
4. Insert the RAID driver disk to the floppy disk drive. Type the command **acpi=off apic=bigsmp brokenmodules=ahci** in **Boot Options** field, and press <Enter>.



5. When below screen appears, select the USB floppy disk drive (sda) as the driver update medium. Select **OK**, then press <Enter>.



6. The drivers for the RAID controller are installed to the system as shown below.



7. Select **Back** and follow the onscreen instructions to finish the installation.

6.2 Intel® chipset device software installation

This section provides the instructions on how to install the Intel® chipset device software on the system.

You need to manually install the Intel® chipset device software on a Windows operating system.

To install the Intel® chipset device software:

1. Restart the computer, and then log on with **Administrator** privileges.
2. Insert the motherboard/system support DVD to the optical drive. The support DVD automatically displays the **Drivers** menu if Autorun is enabled in your computer.

If Autorun is NOT enabled in your computer, browse the contents of the support DVD to locate the file **ASSETUP.EXE** from the **BIN** folder. Double-click the **ASSETUP.EXE** to run the support DVD.

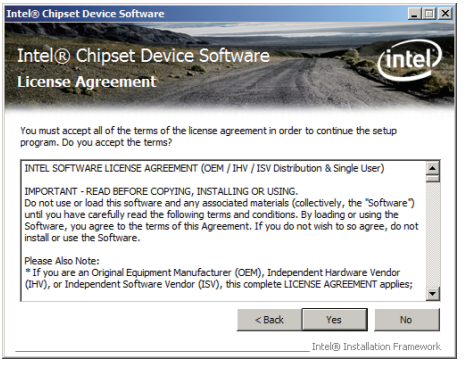
3. Click the item **Intel Chipset Device Software** from the menu.

ASUS Server C20x Series Support DVD - Windows Server 2008 R2 64 bit
Drivers
Utilities
Make Disk
Contact
Drivers
Please select items on the right side.
ASUS InstAll - Drivers Installation Wizard
Intel Chipset Device Software
Intel Network Connections Software
ASPEED AST2050 Display Driver
Intel PRO/1000 Gigabit Adapters Driver

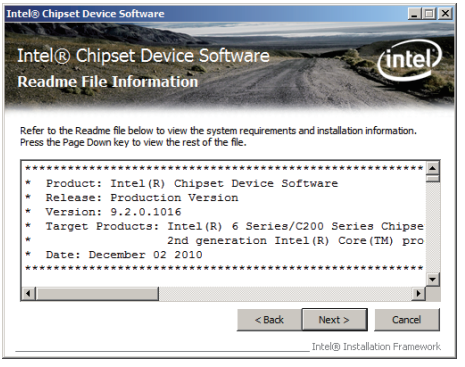
4. The **Intel(R) Chipset Device Software** window appears. Click **Next** to start installation.

Intel® Chipset Device Software
Intel® Chipset Device Software
intel
Welcome to the Setup Program
This setup program will install the Intel® Chipset Device Software onto this computer. It is strongly recommended that you exit all programs before continuing.
< Back
Next >
Cancel
Intel® Installation Framework

5. Select **Yes** to accept the terms of the **License Agreement** and continue the process.


Intel® Chipset Device Software
Intel® Chipset Device Software
License Agreement
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

6. Read the **Readme File Information** and press **Next** to continue the installation.


Intel® Chipset Device Software
Intel® Chipset Device Software
Readme File Information
Refer to the Readme file below to view the system requirements and installation information.
Press the Page Down key to view the rest of the file.
* Product: Intel(R) Chipset Device Software
* Release: Production Version
* Version: 9.2.0.1016
* Target Products: Intel(R) 6 Series/C200 Series Chipse
* 2nd generation Intel(R) Core(TM) pro
* Date: December 02 2010
< Back
Next >
Cancel
Intel® Installation Framework

7. After completing the installation, click **Finish** to complete the setup process.

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Is Complete
The setup program successfully installed the Intel® Chipset Device Software onto this computer.
Click Finish to complete the setup process.
Finish
Intel® Installation Framework

6.3 LAN driver installation

This section provides the instructions on how to install the Intel® Gigabit LAN controller drivers on the system.

You need to manually install the LAN contrroller driver on a Windows® operating system.

To install the LAN controller drivers:

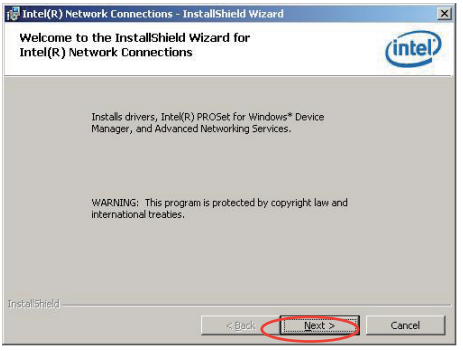
1. Restart the computer, and then log on with **Administrator** privileges.
2. Insert the motherboard/system support DVD to the optical drive. The support DVD automatically displays the **Drivers** menu if Autorun is enabled in your computer.

- Windows® automatically detects the LAN controllers and displays a New Hardware Found window. Click **Cancel** to close this window.
- If Autorun is NOT enabled in your computer, browse the contents of the support DVD to locate the file **ASSETUP.EXE** from the **BIN** folder. Double-click the **ASSETUP.EXE** to run the DVD.

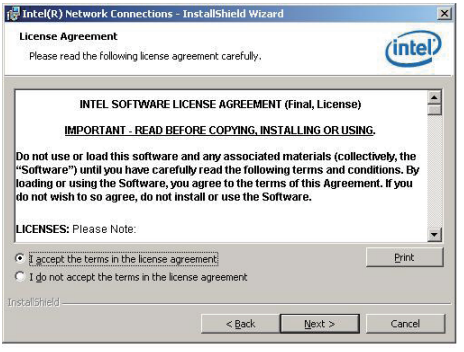
3. Click the **Intel® PRO/1000 Gigabit Adapters Driver** to begin installation.

ASUS Server C20x Series Support DVD - Windows Server 2008 R2 64 bit
Drivers
Utilities
Make Disk
Contact
Drivers
Please select items on the right side.
ASUS InstAll - Drivers Installation Wizard
Intel Chipset Device Software
Intel Network Connections Software
ASPEED AST2050 Display Driver
Intel PRO/1000 Gigabit Adapters Driver

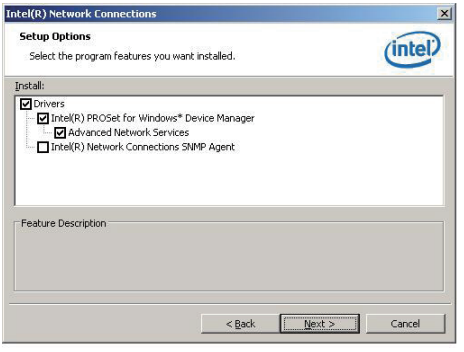
4. Click **Next** when the **Intel(R) Network Connections–InstallShield Wizard** window appears.


Intel(R) Network Connections - InstallShield Wizard
Welcome to the InstallShield Wizard for Intel(R) Network Connections
Installs drivers, Intel(R) PROSet for Windows* Device Manager, and Advanced Networking Services.
WARNING: This program is protected by copyright law and international treaties.
InstallShield
< Back
Next >
Cancel

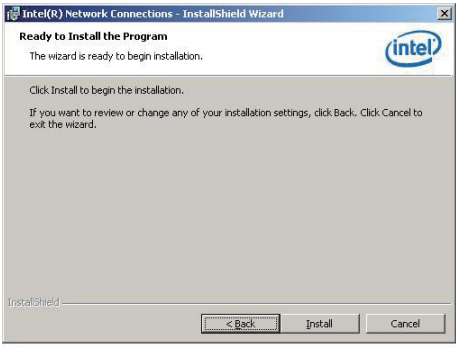
5. Toggle **I accept the terms in the license agreement** and click **Next** to continue.


Intel(R) Network Connections - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
INTEL SOFTWARE LICENSE AGREEMENT (Final, License)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
LICENSES: Please Note:
I accept the terms in the license agreement
I do not accept the terms in the license agreement
Print
InstallShield
< Back
Next >
Cancel

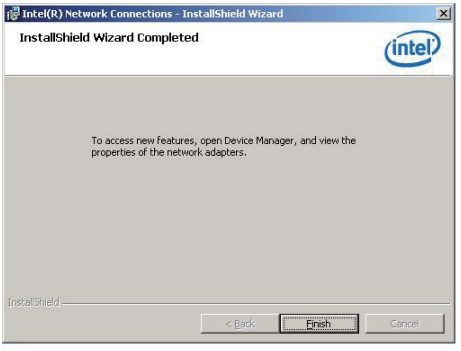
6. Click the **Intel(R) PROSet for Windows Device Manager** box, and then click **Next** to start the installation.



7. Follow the screen instructions to complete installation.


Intel(R) Network Connections - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

8. When finished, press **Finish** to continue.


Intel(R) Network Connections - InstallShield Wizard
InstallShield Wizard Completed
To access new features, open Device Manager, and view the properties of the network adapters.
InstallShield
< Back
Finish
Cancel

6.4 VGA driver installation

This section provides the instructions on how to install the ASPEED Video Graphics Adapter (VGA) driver.

You need to manually install the ASPEED VGA driver on a Windows® operating system.

To install the ASPEED VGA driver:

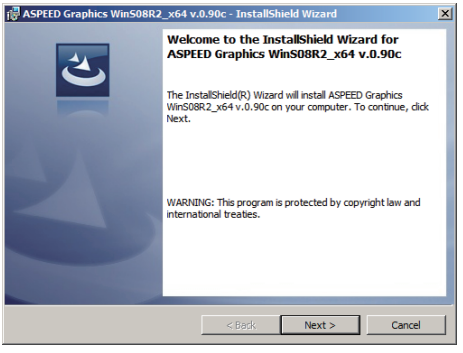
1. Restart the computer, and then log on with **Administrator** privileges.
2. Insert the motherboard/system support DVD to the optical drive. The support DVD automatically displays the **Drivers** menu if Autorun is enabled in your computer.

If Autorun is NOT enabled in your computer, browse the contents of the support DVD to locate the file **ASSETUP.EXE** from the **BIN** folder. Double-click the **ASSETUP.EXE** to run the support DVD.

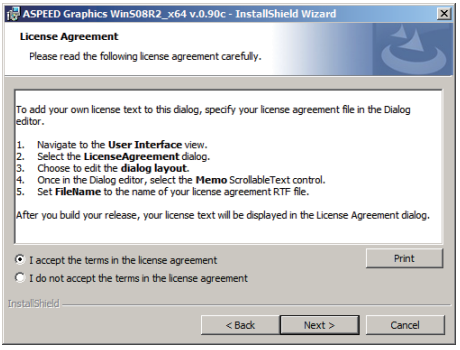
3. Click the **ASPEED AST2050 Display Driver** to begin installation.

ASUS Server C20x Series Support DVD - Windows Server 2008 R2 64 bit
Drivers
Utilities
Make Disk
Contact
Drivers
Please select items on the right side.
ASUS InstAll - Drivers Installation Wizard
Intel Chipset Device Software
Intel Network Connections Software
ASPEED AST2050 Display Driver
Intel PRO/1000 Gigabit Adapters Driver

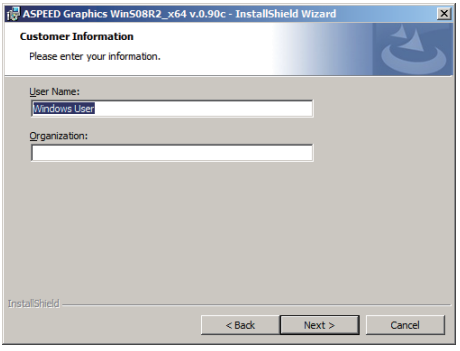
4. Click **Next** to start the installation.


ASPEED Graphics WinS08R2_x64 v.0.90c - InstallShield Wizard
Welcome to the InstallShield Wizard for ASPEED Graphics WinS08R2_x64 v.0.90c
The InstallShield(R) Wizard will install ASPEED Graphics WinS08R2_x64 v.0.90c on your computer. To continue, click Next.
WARNING: This program is protected by copyright law and international treaties.
< Back
Next >
Cancel

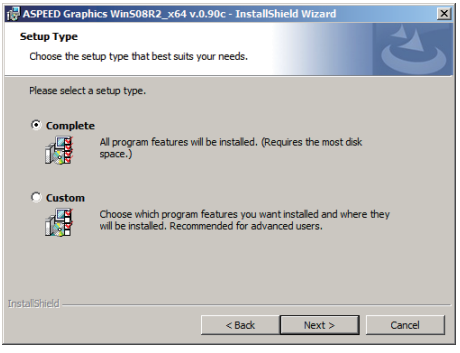
5. Toggle **I accept the terms in the license agreement** and click **Next** to continue.


ASPEED Graphics WinS08R2_x64 v.0.90c - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
To add your own license text to this dialog, specify your license agreement file in the Dialog editor.
1. Navigate to the User Interface view.
2. Select the LicenseAgreement dialog.
3. Choose to edit the dialog layout.
4. Once in the Dialog editor, select the Memo ScrollableText control.
5. Set FileName to the name of your license agreement RTF file.
After you build your release, your license text will be displayed in the License Agreement dialog.
I accept the terms in the license agreement
I do not accept the terms in the license agreement
Print
InstallShield
< Back
Next >
Cancel

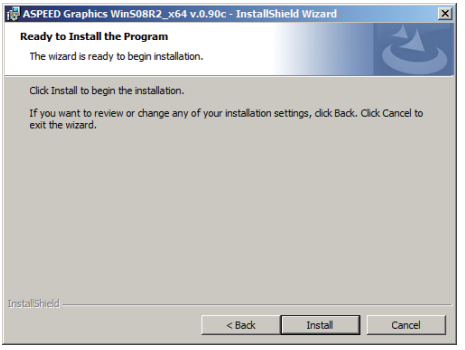
6. Enter the user information and click **Next** to continue.



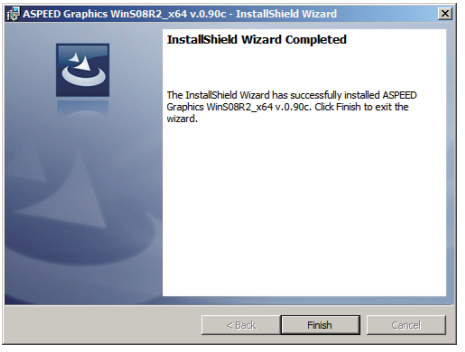
7. Select a setup type and click **Next** to continue.


ASPEED Graphics WinS08R2_x64 v.0.90c - InstallShield Wizard
Setup Type
Choose the setup type that best suits your needs.
Please select a setup type.
Complete
All program features will be installed. (Requires the most disk space.)
Custom
Choose which program features you want installed and where they will be installed. Recommended for advanced users.
InstallShield
< Back
Next >
Cancel

8. Click **Install** to start driver installation.


ASPEED Graphics WinS08R2_x64 v.0.90c - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

9. When the installation completes, click **Finish** to restart your computer before using the program.


ASPEED Graphics WinS08R2_x64 v.0.90c - InstallShield Wizard
InstallShield Wizard Completed
The InstallShield Wizard has successfully installed ASPEED Graphics WinS08R2_x64 v.0.90c. Click Finish to exit the wizard.
< Back
Finish
Cancel

6.5 Management applications and utilities installation

The support DVD that came with the motherboard package contains the drivers, management applications, and utilities that you can install to avail all motherboard features.

The contents of the support DVD are subject to change at any time without notice. Visit the ASUS website (www.asus.com) for updates.

6.5.1 Running the support DVD

Place the support DVD to the optical drive. The DVD automatically displays the Drivers menu if Autorun is enabled in your computer.

If Autorun is NOT enabled in your computer, browse the contents of the support DVD to locate the file A**SSETUP.EXE** from the **BIN** folder. Double-click the **ASSETUP.EXE** to run the support DVD.

6.5.2 Drivers menu

The Drivers menu shows the available device drivers if the system detects installed devices. Install the necessary drivers to activate the devices.

The screen display and driver options vary under different operating system versions.

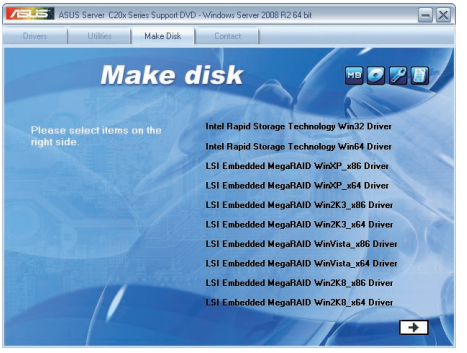
ASUS Server C20x Series Support DVD - Windows Server 2008 R2 64 bit
Drivers
Utilities
Make Disk
Contact
Drivers
Please select items on the right side.
ASUS InstAll - Drivers Installation Wizard
Intel Chipset Device Software
Intel Network Connections Software
ASPEED AST2050 Display Driver
Intel PRO/1000 Gigabit Adapters Driver

6.5.3 Utilities menu

The Utilities menu displays the software applications and utilities that the motherboard supports. Click an item to install.

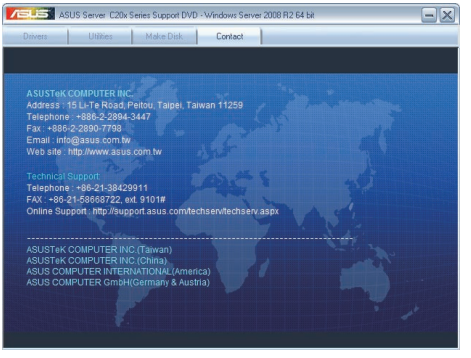
6.5.4 Make disk menu

The Make disk menu contains items to create the Intel RAID and LSI MegaRAID driver disks.


ASUS Server C20x Series Support DVD - Windows Server 2008 R2 64 bit
Drivers
Utilities
Make Disk
Contact
Make disk
Please select items on the right side.
Intel Rapid Storage Technology Win32 Driver
Intel Rapid Storage Technology Win64 Driver
LSI Embedded MegaRAID WinXP_x86 Driver
LSI Embedded MegaRAID WinXP_x64 Driver
LSI Embedded MegaRAID Win2K3_x86 Driver
LSI Embedded MegaRAID Win2K3_x64 Driver
LSI Embedded MegaRAID WinVista_x86 Driver
LSI Embedded MegaRAID WinVista_x64 Driver
LSI Embedded MegaRAID Win2K8_x86 Driver
LSI Embedded MegaRAID Win2K8_x64 Driver

6.5.5 Contact information

Click the Contact tab to display the ASUS contact information. You can also find this information on the inside front cover of this user guide.



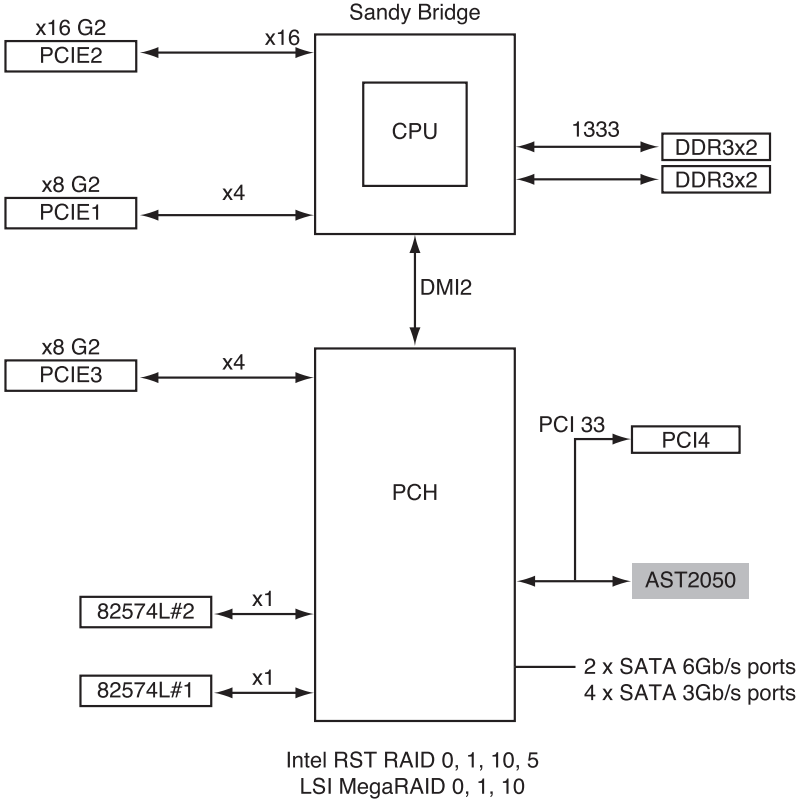
This appendix includes additional information that you may refer to when configuring the motherboard.

A Reference information

Appendix summary

A.1 P8B-M block diagram.....A-3

A.1 P8B-M block diagram



ASUS contact information

ASUSTeK COMPUTER INC. (Taiwan)

Address	15 Li-Te Road, Peitou, Taipei, Taiwan 11259
Telephone	+886-2-2894-3447
Fax	+886-2-2890-7798
E-mail	info@asus.com.tw
Web site	http://www.asus.com.tw

Technical Support

Telephone	+886-2-2894-3447 (0800-093-456)
Online Support	http://support.asus.com/techserv/techserv.aspx

ASUSTeK COMPUTER INC. (China)

Address	No.508, Chundong Road, Xinzhuang Industrial Zone, Minhang District, Shanghai, China.
Telephone	+86-21-5442-1616
Fax	+86-21-5442-0099
Web site	http://www.asus.com.cn

Technical Support

Telephone	+86-21-3407-4610 (800-820-6655)
Online Support	http://support.asus.com/techserv/techserv.aspx

ASUS COMPUTER INTERNATIONAL (America)

Address	800 Corporate Way, Fremont, CA 94539, USA
Fax	+1-510-608-4555
Web site	http://usa.asus.com

Technical Support

Support fax	+1-812-284-0883
General support	+1-812-282-2787
Online support	http://support.asus.com/techserv/techserv.aspx

ASUS COMPUTER GmbH (Germany and Austria)

Address	Harkort Str. 21-23, D-40880 Ratingen, Germany
Fax	+49-2102-959911
Web site	http://www.asus.de
Online contact	http://www.asus.de/sales

Technical Support

Telephone	+49-1805-010923*
Support Fax	+49-2102-959911
Online support	http://support.asus.com/techserv/techserv.aspx

*** EUR 0.14/minute from a German fixed landline; EUR 0.42/minute from a mobile phone.**

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2. 1077(a)

Responsible Party Name: Asus Computer International

Address: 800 Corporate Way, Fremont, CA 94539.

Phone/Fax No: (510)739-3777/(510)608-4555

hereby declares that the product

Product Name : Motherboard

Model Number : P8B-M

Conforms to the following specifications:

- ☒ FCC Part 15, Subpart B, Unintentional Radiators
- ☐ FCC Part 15, Subpart C, Intentional Radiators
- ☐ FCC Part 15, Subpart E, Intentional Radiators

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Representative Person's Name : **Steve Chang / President**

Signature :

Date : **Mar. 11, 2011**

Ver. 110101

EC Declaration of Conformity

We, the undersigned,

Manufacturer:	ASUSTek COMPUTER INC.
Address, City:	No. 150, LI-TE RD., PEITOU, TAIPEI 112, TAIWAN R.O.C.
Country:	TAIWAN
Authorized representative in Europe:	ASUS COMPUTER GmbH
Address, City:	HARKORT STR. 21-23, 40880 RATINGEN
Country:	GERMANY

declare the following apparatus:

Product name :	**Motherboard**
Model name :	**P8B-M**

conform with the essential requirements of the following directives:

☒2004/108/EC-EMC Directive

☒ EN 55022:2006+A1:2007	☒ EN 55024:1998+A1:2001+A2:2003
☒ EN 61000-3-2:2006+A2:2009	☒ EN 61000-3-3:2008
☐ EN 55013:2001+A1:2003+A2:2006	☐ EN 55020:2007

☐1999/5/EC-R &TTE Directive

☐ EN 300 328 V1.7.1(2006-05)	☐ EN 301 489-1 V1.8.1(2008-04)
☐ EN 300 440-1 V1.4.1(2008-05)	☐ EN 301 489-3 V1.4.1(2002-08)
☐ EN 300 440-2 V1.2.1(2008-03)	☐ EN 301 489-4 V1.3.1(2002-08)
☐ EN 301 511 V9.0.2(2003-03)	☐ EN 301 489-7 V1.3.1(2005-11)
☐ EN 301 908-1 V3.2.1(2007-05)	☐ EN 301 489-9 V1.4.1(2007-11)
☐ EN 301 908-2 V3.2.1(2007-05)	☐ EN 301 489-17 V2.1.1(2009-05)
☐ EN 301 893 V1.4.1(2005-03)	☐ EN 301 489-24 V1.4.1(2007-09)
☐ EN 302 544-2 V1.1.1(2009-01)	☐ EN 302 326-2 V1.2.2(2007-06)
☐ EN 50360:2001	☐ EN 302 326-3 V1.3.1(2007-09)
☐ EN 50371:2002	☐ EN 301 357-2 V1.3.1(2006-05)
☐ EN 50385:2002	☐ EN 302 623 V1.1.1(2009-01)

☒2006/95/EC-LVD Directive

☐ EN 60950-1:2006	☐ EN 60065:2002+A1:2006+A11:2008
☒ EN 60950-1:2006+A11:2009	

☐2009/125/EC-ErP Directive

Regulation (EC) No. 1275/2008	Regulation (EC) No. 278/2009
☐ EN 62301:2005	☐ EN 62301:2005
Regulation (EC) No. 642/2009	
☐ EN 62301:2005	Ver. 110101

☒CE marking

(EC conformity marking)

Position : **CEO**

Name : **Jerry Shen**

Declaration Date: Mar. 11, 2011

Year to begin affixing CE marking:2011

Signature : _____